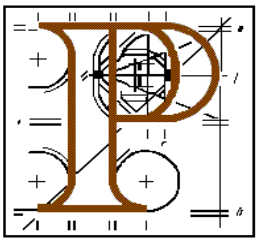
Board Direction

An Bord Pleanála



Ref: 08.PA0002

The application documents together with the EIS, all submissions made on this file and the Inspector's report were considered at a Board meeting held on 27th March 2008.

The Board decided, unanimously, to grant permission generally in accordance with the Inspector's recommendation**,** subject to the amendments shown in manuscript on the attached copy of the draft order.

Note: The Board noted the submission of 26th March 2008 received from the Kilcolgan Residents Association and considered that these matters should have been raised at the oral hearing and, in any event, do not provide any new relevant information.

The Board also deleted a number of conditions as recommended by the Inspector either because they related to matters more properly dealt with through IPPC licensing or had been covered by other conditions or in the plans and specifications for the proposed development.

Costs: A breakdown of the costs determined in relation to this planning application is outlined in Appendix A attached to the order. A full set of timesheets, invoices, other claims, etc. is contained in a separate folder on the file.

In awarding certain costs to the planning authority the Board noted that the only costs allowable are those incurred during the course of consideration of the planning application. In deciding on the reasonable costs incurred by the planning authority the Board had particular regard to the reasonable time required by the planning authority to prepare its report for submission to the Board, the complexity of the issues in the case, the duration of the oral hearing and the number of officials, which in the opinion of the Board, was reasonable to be in attendance at the oral hearing.

In exercising its absolute discretion to award certain costs to the Kilcolgan Residents' Association, the Board considered that, as recommended by the Inspector, the contribution of Dr. Jerry Havens provided information which contributed especially to the Board's understanding of the issues involved in the application particularly having regard to the unique nature of the proposed land use, process and technology in terms of development in Ireland.

In exercising its absolute discretion to award nil costs to any other person who made submissions or observations during the course of the application, the Board had regard to the nature of its decision on the application for permission and considered that it would not be reasonable for the Board to direct the applicant to pay any of the costs involved.

The covering letter accompanying the notification of this decision should draw attention to the provisions of Section 37H(6).

A copy of this direction should accompany each letter of notification of this decision.

Board Member _____ Date 28th March 2008.

Brian Hunt

An Bord Pleanála

STRATEGIC INFRASTRUCTURE DEVELOPMENT

PLANNING AND DEVELOPMENT ACTS 2000 TO 2007

An Bord Pleanála Reference Number: PL 08.PA0002

(Planning Authority: Kerry County Council)

APPLICATION for permission under section 37E of the Planning and Development Act, 2000, as amended, in accordance with plans and particulars, including an Environmental Impact Statement, lodged with An Bord Pleanála on the 24th of September, 2007 by Shannon LNG Limited care of Arup Consulting Engineers, 15 Oliver Plunkett Street, Cork.

PROPOSED DEVELOPMENT: Construction of a Liquefied Natural Gas (LNG) Regasification Terminal located on the Southern Shore of the Shannon Estuary in the townlands of Ralappane and Kilcolgan Lower, County Kerry.

DECISION

GRANT permission under section 37G of Planning and Development Act, 2000 as amended, for the above proposed development in accordance with the said plans and particulars based on the reasons and considerations under and subject to the conditions set out below.

DETERMINE under section 37H(2)(c) the sum to be paid by the applicant in respect of costs associated with the application as set out in the Schedule of Costs below.

MATTERS CONSIDERED

In making its decision, the Board had regard to those matters to which, by virtue of

the Planning and Development Acts and Regulations made thereunder, it was required to have regard. Such matters included the submissions and observations received by it in accordance with statutory provisions.

REASONS AND CONSIDERATIONS

Having regard to:

(a) The provisions of the National Development Plan in relation to security of energy supply,

(b) the strategic goals of the government White Paper, entitled "Delivering a Sustainable Energy Future for Ireland", published in 2007, which seek to ensure secure and reliable electricity and gas supplies, to enhance the diversity of fuels used for power generation and to be prepared for energy supply disruptions,

(c) the objectives of the Kerry County Development Plan, 2003-2009, including the industrial zoning objective and the objective to identify lands in key strategic locations that are particularly suitable for development that may be required by specific sectors,

(d) the identification in the Kerry County Development Plan, 2003-2009, of lands at Ballylongford/Tarbert as suitable for development as a premium deepwater port and for major industrial development and employment creation,

(e) the accessibility of the site to sheltered deep water capable of being reached by the largest contemplated liquefied natural gas tanker ships,

(f) the proximity of the site to the national gas transmission grid at a point where there is sufficient capacity to accept the gas output of the terminal,

(g) the detailed design of the proposed development, including the mitigation measures of the environmental impact statement,

(h) the submissions and observations received in relation to the likely effects on the environment of the proposed development, and

(i) the report and recommendation of the person who conducted the oral hearing,

it is considered that, subject to compliance with the conditions below, the proposed development would not seriously injure the amenities of the area or of property in the vicinity, would not be prejudicial to public health or safety and would be acceptable in terms of traffic safety and convenience. The proposed development would, therefore, not have significant effects on the environment and would be in

accordance with the proper planning and sustainable development of the area.

CONDITIONS

1. The development shall be carried out in accordance with the plans and particulars, including the environmental impact statement, lodged with An Bord Pleanala on the 24th day of September 2007, except as may otherwise be required in order to comply with the following conditions.

   Reason: In the interest of clarity.

2. This permission shall, in accordance with the application, be for a period of ten years from the date of this order.

   Reason: In order to allow a reasonable period for the completion of this extensive development.

3. The construction of the liquefied natural gas terminal shall be undertaken as a single continuous project, or, alternatively, shall be carried out on a phased basis, with each phase being related to the construction of one or more of the full containment liquefied natural gas storage tanks. In the event that the proposed development is undertaken on a phased basis, the first phase shall be related to the construction of two of the full containment liquefied natural gas storage tanks. The developer shall advise the planning authority of the proposed phasing, if any, prior to the commencement of development.

   Reason: In the interest of clarity and to reduce the construction period in the interest of residential amenity.

4. The southwestern boundary and the extent of the site shall be amended so as to entirely exclude the road to Kilcolgan Strand and the parking/turning area at its termination. The boundary shall be relocated in such a manner as to allow unimpeded pedestrian access to the shoreline in a straight-line projection from this road from the terminating parking/turning area. The relocated site boundary and fence shall be as agreed during the course of the oral hearing in connection with the proposed development and shall be as shown on modified Arup Drawing No. SK-107 received by the Board on the 12th day of March, 2008.

   Reason: To maintain existing access to the shoreline.

5. The entrance to the administration complex shall be relocated in an easterly direction by approximately 50 metres, as shown on Arup Drawings SK-105 and SK-106, presented at the oral hearing on the 29th day of January, 2008.

Reason: In the interest of residential amenity.

6. Subject to any further amendments required to accommodate the relocation of the entrance to the administration complex, required at Condition 5, above, the road boundary fence line shall be set back as shown on the drawing entitled "Proposed Alternative Fence Location", submitted as part of the landscape and visual presentation images at the oral hearing on the 25th day of January, 2008. The planting and landscaping between this setback boundary and the existing road boundary shall be amended as shown on this drawing.

Reason: In the interest visual amenity.

7. In accordance with the terms of this permission the liquefied natural gas terminal shall be for the purpose of supplying natural gas in to the national grid and may, have the purpose of providing strategic reserve storage. No gas, whether in liquid or gaseous form, shall be permitted to leave the site by road tanker, nor, except in the event of an emergency, shall there be any re-export of liquefied natural gas from the site by tanker ship.

Reason: In the interest of clarity and of orderly development and traffic safety.

8. Prior to the commencement of the main construction elements of the development, all necessary public infrastructure works shall be completed to the satisfaction of the planning authority. This shall not preclude the undertaking of site preparation and earthworks contemporaneously with the upgrading of the L1010 coast road. The precise extent of works, which may be carried out prior to the completion of the public infrastructure works, shall be submitted to and agreed in writing with the planning authority, prior to commencement of development and in default of agreement, shall be determined by An Bord Pleanála.

Reason: In the interest of orderly development and of traffic safety.

9. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority a detailed traffic management plan. This management plan shall include restrictions on traffic movements at Tarbert Comprehensive School, which shall prohibit the movement of heavy goods vehicle traffic associated with the construction of the terminal for a minimum period of 20 minutes before and ten minutes after the opening and closing times of the school. It shall also include the staggering of various shift start and finish times.

Reason: In the interest of traffic and pedestrian safety.

10. All vehicles traversing unpaved areas of the construction site shall pass through wheelwash facilities with rumble grids. These shall be located inside all exits from the site. All vehicles leaving the site shall be monitored to ensure that the public road is kept free of mud and debris.

Reason: In the interest of traffic safety and general amenity.

11. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority, a monitoring programme for the condition of the L1010 coast road during the construction phases of the proposed development from the southernmost extremity of the site to Tarbert. The monitoring programme shall include details of the frequency of surveys, acceptable surface standards and response times for agreed works. In the event that identified remedial works are to be carried out by the planning authority, all costs associated with these works shall be reimbursed to the planning authority by the developer.

Reason: In the interest of traffic safety.

12. The developer shall maintain on site, for the duration of the construction period, oil abatement kits comprising of booms and absorbent materials. The precise nature and extent of the kits shall be submitted to and agreed in writing with the planning authority prior to commencement of development.

Reason: To prevent water pollution.

13(a) During the site clearance, preparation and construction phase of the proposed development, the resulting noise level, when measured at the nearest noise sensitive location, shall not exceed-

(an L_{Aeq}1 hour value of 55 dB(A) during the period 0800 to 2200 hours from Monday to Saturday (inclusive), and

(ii) an L_{Aeq}15 minutes value of 45 dB(A) at any other time.

(b) All sound measurements shall be carried out in accordance with ISO Recommendations R 1996, "Assessment of Noise with Respect to Community Response" as amended by ISO Recommendations R 1996/1, 2 and 3, "Description and Measurement of Environmental Noise", as appropriate.

Reason: To protect the amenities of properties in the vicinity of the site.

14 (a) The vibration levels from blasting shall not exceed a peak particle velocity of 12mm/sec.

(b) Blasting shall not give rise to air overpressure values exceeding 125 dB (Lin) max peak.

(c) Blasting shall only take place between the hours of 10.00 a.m. to 17.00p.m Monday to Friday. Prior to the firing of any blast, the developer shall give notice of his intention to the occupiers of all dwellings within 600 metres of the site. An audible alarm for a minimum period of one minute shall be sounded. This alarm shall be of sufficient power to be heard at all dwellings adjacent to the site.

Reason: In the interest of residential amenity and public safety.

15. During the site clearance, preparation and construction phase of the development, dust levels shall not exceed 350 milligrams per square metre (TA LUFT Air Quality Standard) per day averaged over 30 days, when measured at the site boundary.

Reason: In the interest of public health and residential amenity.

16. The developer shall employ suitably qualified marine mammal observers for the duration of sub-tidal piling and on-shore blasting. Commencement of piling or blasting shall be delayed if the marine mammal observers note dolphins within 500 metres of the site within 20 minutes of the planned commencement of works. No action shall be necessary if a dolphin approaches once operations have commenced. A log of the marine mammal observer operations shall be submitted to the planning authority, following completion of these works.

Reason: In the interest of wildlife protection.

17. The acoustic monitoring programme carried out in assessing the potential impact of the proposed development on the resident bottle-nosed dolphin population shall be continued through the construction phase and for a period of 24 months into the final operational phase. The results of the monitoring programme shall be submitted to the planning authority at 12 monthly intervals.

Reason: In the interest of wildlife protection.

18. During the construction phase, the developer shall adhere to the document entitled "Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes" published by the National Roads Authority in 2006. In particular, there shall be no blasting or pile driving within 150 metres of an active badger sett during the breeding season (December to June) or construction works within 50 metres of an active sett during the breeding season.

Reason: In the interest of wildlife protection.

19. Where an existing badger sett would be disturbed or destroyed, an artificial sett shall be constructed beforehand and the badgers relocated thereto.

Details of any such artificial setts shall be submitted to and agreed in writing with the planning authority, prior to commencement of development.

Reason: In the interest of wildlife protection.

20. Detailed measures in relation to the protection of bats shall be submitted to and agreed in writing with the planning authority, prior to commencement of development. The proposed mitigation measures set out in the environmental impact statement in relation to bat populations shall be carried out only under licence from the National Parks and Wildlife Service and details of any such licence shall be copied to the planning authority.

Reason: In the interest of wildlife protection.

21. As soon as practical, a monitoring programme shall be instituted to monitor the movement of winter wetland birds along the shore adjacent to the application site between Ballylongford Bay and Tarbert Bay. This monitoring programme shall continue through the construction phase and for a period of 3 years after the final construction, with monthly surveys from October to March. The results of this monitoring programme shall be submitted to the planning authority at 12 monthly intervals.

Reason: In the interest of wildlife protection.

22. Prior to the destruction of the existing sand martin breeding cliffs within the site, the developer shall ascertain the suitability of alternative potential nesting locations within a distance of 500 metres of the site. Should no suitable natural locations be found within this distance, artificial burrows shall be provided within the site.

Prior to commencement of development, details showing compliance with this requirement shall be submitted to and agreed in writing with the planning authority.

Reason: In the interest of wildlife protection.

23. The removal of frogs from the site shall be undertaken during the months of August-February only and shall be carried out under licence from the National Parks and Wildlife Service.

Reason: In the interest of wildlife protection.

24. The design of the water intake shall be based on best available technology and shall be submitted to and agreed in writing with the planning authority, prior to commencement of development. A monitoring programme shall be implemented following the commissioning of the water intake over the course of 2 years to provide an estimate of the numbers of impinged and entrained organisms, particularly fish and macro-crustaceans. The results of this monitoring programme shall be submitted to the planning authority at 12 monthly intervals and every effort shall be made to facilitate any changes, which may be deemed necessary to reduce the numbers of impinged and entrained organisms.

Reason: In the interest of wildlife protection.

25. The effects on the salt marsh of regulating the flow of water downstream of the holding pond during the pond filling period and reverting to the natural flow regime thereafter shall be monitored and any alterations to the flow, deemed necessary, shall be made.

Reason: In the interest of wildlife protection.

26. During the construction phase, the developer shall adhere to the document entitled "Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes", published by the National Roads Authority in 2005. In particular a pre-construction otter holt survey shall be conducted no more than 10-12 months in advance of construction.

Reason: In the interest of wildlife protection.

27. During the filling of the pond, the stream shall be diverted along an alignment following its ultimate southern margin and paralleling the top of the embankment, as shown on the amended Arup Figure 3.11 and amended extract from Arup Drawing C1676/C021, submitted at the oral hearing on the 29th day of January, 2008.

Reason: To minimise the impact on the stream, downstream of the embankment.

28. The full containment liquefied natural gas storage tanks shall have an uncoloured plain concrete finish. They shall not be used for any form of advertising or name signs.

Reason: In the interest of visual amenity.

29. Prior to commencement of development, the developer shall enter into discussions with the landowners at Ralappane House and the house approximately 500 metres to the east of Ralappane House with a view to providing additional screen planting in the vicinity of these houses. Such planting shall be designed to screen the liquefied natural gas tanks from view in as short a time as possible, having due regard to the exposed conditions at these locations. Details of agreed planting, at a minimum scale of 1:500, shall be submitted for the records of the planning authority. In the event that this should not prove possible, as a result of the failure to obtain the consent of the landowners, evidence of having attempted to achieve such consent shall be submitted for the records of the planning authority.

Reason: In the interest of visual amenity.

30. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority, details in relation to the site clearance and preparation phase of the development. These details shall include a waste management plan, the timely and secure fencing of the entire land boundary, including details of any temporary fencing, arrangements for the storage and dispensing of all oils, including fuel, hydraulic and lubricating oils and their storage within bunded areas, the provision oil pollution equipment, the provision of mobile bowsers, machinery reversing alarms, the treatment of surface waters and run off waters which may be contaminated by silt, grit, etc., and the treatment of sanitation and canteen waste.

Reason: In the interest of orderly development and the protection of the environment.

31. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority, a timetable for the planting and landscaping shown on Brady Shipman, Martin Drawing C501. Should it be intended to carry out this planting in a series of phases or areas, this shall be illustrated with appropriate maps and shall be submitted to and agreed in writing with the planning authority, prior to commencement of development and in default of agreement, shall be determined by An Bord Pleanála.

Reason: In the interest of visual amenity.

32. The following archaeological requirements shall be complied with in the development: -

(a) Targeted archaeological testing shall be undertaken at areas B, C, F, I, J, K, L, M, 6, 8, 10 and 13 (as identified in the archaeological assessment report) and in the identified areas of archaeological potential.

(b) A wade and metal detection survey shall be undertaken on the watercourse.

(c) Areas CHS2, CHS4, CHS5, CHS6, CHS7, CHS9, CHS13 and CHS15 shall be fully recorded in advance of removal.

(d) A seabed impact exclusion zone of 50 metres shall be established around feature SS8 (as identified in the archaeological assessment report) during the construction phase of the development.

(e) A diver survey shall be undertaken along the footprint of the proposed jetties and, where archaeological material/features are shown to be present, they shall be preserved *in situ*, preserved by

record, avoided or monitored, as appropriate.

(f) The results of archaeological testing, in consultation with the planning authority, shall inform the size and extent of the buffer zone around the ringfort CH10, Area G and Area 17 (as identified in the archaeological assessment report).

(g) Scheduled testing shall be undertaken.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

33. Prior to commencement of development, the developers shall agree the location and nature of any obstacle lights, which may be necessary, with the Irish Aviation Authority. Details of such lights, if any, shall be submitted for the records of the planning authority.

Reason: In the interest of public safety.

34. Prior to commencement of development, a comprehensive lighting scheme for the development shall be prepared and implemented. This shall be prepared by a suitably qualified lighting specialist, and shall minimise light pollution from the facility. Full cut-off lighting shall be employed for all lighting of roads, parking, and other relevant surface lighting. If may be appropriate to employ variable lighting levels or other controls to minimise unnecessary lighting. The scheme shall also set out practices to minimise light pollution during construction.

Reason: In the interest of visual amenity.

35. The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000. The contribution shall be paid prior to the commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine the proper application of the terms of the Scheme.

Reason: It considered reasonable that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000 as amended be applied to the permission.

36. The developer shall pay to the planning authority a financial contribution as a special contribution under section 48(2)(c) of the Planning and Development Act 2000 in respect of

- Upgrading the public water infrastructure serving the site from a 50 millimetre diameter main to a 150-millimetre diameter Class C watermain.

- Provision of specialist fire fighting facilities for the fire service.

- Upgrading and widening the L1010 coast road to the standard required to facilitate the project.

- Upgrading footpaths and the road surface of Bridewell Street, Tarbert and the development of an off-street car park to facilitate proposed traffic management and parking control measures.

- Improvements at the junction of the R551 and L1010.

(In the event of the specified infrastructure benefiting subsequent developments, contributions arising shall be apportioned to each development. While the entire contribution is payable, as the works are immediately required for the current development, on completion of subsequent developments, the current developer shall receive the benefit of development contributions as apportioned).

Reason: It is considered reasonable that the developer should contribute towards the specific exceptional costs, which are incurred by the planning authority which are not covered in the Development Contribution Scheme and which shall benefit the proposed development.

37. Prior to commencement of development, the developer shall prepare an Annual Community Contribution Scheme to be administered by the planning authority in conjunction with the Community Liaison Committee established under condition 38 for the benefit of the local community. The amount of the contribution shall be €200,000 (two hundred thousand euro) per annum for the duration of the development. The first payment contribution shall be paid prior to commencement of development and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. The application of any indexation required by this condition shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine.

Reason: It is considered appropriate that the developer should contribute towards the cost of community projects in the vicinity of the development, in accordance with the provisions of section 37g(7) of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006.

38. Prior to commencement of development a community liaison committee shall be established to liase between the developer and the local community. The membership of the committee shall include representation from two elected members of Kerry County Council, two officials of Kerry County Council, three members of the local community (Ballylongford, Kilcolgan and Tarbert) and two representatives of the developer. The community liaison committee shall have responsibility for the administration of the community fund to be set out under condition number 37 above and for decisions on projects to be supported by the fund in addition to acting as a liaison committee with the local community in relation to ongoing monitoring of the construction and operation of the proposed terminal.

Reason: To provide for appropriate ongoing review of operations at the site in conjunction with the local community and to provide for the allocation of resources from the community gain fund in accordance with the requirements of the local community.

39. Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or other security to secure the provision and satisfactory completion of the development. The bond shall remain in place for a period of 17 years from the date of grant of permission, or until such time as the development has been completed to the satisfaction of the planning authority in accordance with the conditions of the planning permission hereby granted (whichever is the sooner). The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be determined by An Bord Pleanála.

Reason: To ensure the satisfactory completion of the development.

40. On or before the date of expiry of the cash deposit, bond or other security required at Condition 45, above, the developer shall lodge a similar form of financial security to secure the satisfactory reinstatement of the site upon cessation of the project. The form and amount of the security shall be as agreed between the planning authority and the developer, or, in default of agreement, shall be determined by An Bord Pleanála.

Reason: To secure the satisfactory reinstatement of the site, in the interests of visual amenity.

SCHEDULE OF COSTS

In accordance with section 37H of the Planning and Development Act 2000 as amended the Board requires the following costs to be paid by the applicant-

	€
To An Bord Pleanála towards the cost of determining the application	162,124.00
To Kerry County Council towards reasonable costs incurred in consideration of the application.	43,076.00
To Kilcolgan Residents Association as a contribution towards the costs incurred during the course of consideration of the application.	2,876.00
Total:	**€208,076.00**

Note: A breakdown of this sum is set out in the attached Appendix.

Member of An Bord Pleanála
duly authorised to authenticate
the seal of the Board.

Dated this day of 2008.

Appendix 1.

Strategic Infrastructure Development
Cost of determining the Application and other Costs.

File No.08.PA0002

Brief Description of Development: Construction of a Liquefied Natural Gas (LNG) Regasification Terminal located on the Southern Shore of the Shannon Estuary in the townlands of Ralappane and Kilcolgan Lower, County Kerry.

1. Sum to be paid to the Board towards the costs of determining the application.

	Board's Costs	€
(1)	Cost based on Inspector's time.	110,281
(2)	Costs invoiced to Board.	51,843
(3)	Total chargeable costs.	162,124
(4)	Application fee paid.	Nil
(5)	Net amount due to be paid by applicant, or	162,124
(6)	Amount due to be refunded to applicant.	Nil

2. Sum(s), which the Board considers reasonable, to be paid by the applicant to the planning authority or planning authorities**.**

	Name of Planning Authority	€
(1)	Kerry County Council	43,076
(2)		
(3)		

3. Sum(s) to be paid by the applicant to other persons as a contribution to the costs incurred by such persons during the course of consideration of the application.

	Name of Person	€
(1)	Kilcolgan Residents Association	2,876
(2)		
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		
(9)		
(10)		

_____

Member of An Bord Pleanála duly authorised to authenticate the Seal of the Board.

Date _____

An Bord Pleanála

Inspector's Report

Development:	Liquefied Natural Gas (LNG) regasification terminal on the southern shore of the Shannon Estuary in the townlands of Ralappane & Kilcolgan Lower, County Kerry.
Planning Application	
Planning Authority:	Kerry County Council.
Applicant:	Shannon LNG.
Type of Application:	Application to the Board under Section 37E of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006.
Third Party Submissions:	See overleaf.
Date of Site Inspection:	14th & 15th November 2007.

Inspector: **Andrew Boyle.**

Proposed LNG regasification terminal on the southern shore of the Shannon Estuary in the townlands of Ralappane and Kilcolgan Lower Co. Kerry.

PA0002

List of Observers

	Observers	AGENT
1.	Kathleen Kelly	N/A
2.	National Roads Authority	N/A
3.	Chloe Griffin	N/A
4.	Catriona Griffin	N/A
5.	Patrick Griffin	N/A
6.	Adam Kearney Associates	N/A
7.	Mary Kelly-Godley	N/A
8.	Jayne Keanney	N/A
9.	Susan Foley	N/A
10.	John C. Foley	N/A
11.	John Fox	N/A
12.	DB Marine Research & Associates	N/A
13.	Ballylongford Enterprise Association C/o Noel Lynch	N/A
14.	Kirbys Lanterns Hotel c/o Marie Kirby Meade	N/A
15.	Morgan Heaphy	N/A
16.	Alan Fitzell and Margaret Fitzell	N/A
17.	Brian Fitzell	N/A
18.	Tarbert- Ballylongford Working Group c/oNoel Lynch and Joan Murphy	N/A
19.	Tina O'Connor	Marshall & Macaulay
20.	Eileen O'Connor	Marshall & Macaulay
21.	John O'Connor	Marshall & Macaulay

22.	Anne O'Connor	Marshall & Macaulay
23.	Tom Moore	N/A
24.	Tarbert Development Association c/o Joan Murphy	N/A
25.	The Department of Agriculture Fisheries and Food c/o Geraldine Hayes/Pat Corcoran	N/A
26.	Kathleen Finucane	N/A
27.	Friends of the Irish Environment	N/A
28.	Geraldine Carmody	N/A
29.	Patricia Anglim O'Connor	N/A
30.	Kathy Sinnott, MEP	N/A
31.	Donncha & Margaret Finucane	N/A
32.	Nigel Fitzel & Rachel Smyth	N/A
33.	C&M Saftety Ltd. C/o Margaret Culhane	N/A
34.	Scoil Náisiúnta Tairbeart	N/A
35.	Kilcolgan Residents Association c/o Johnny McElligott	N/A
36.	Thomas O'Donovan	N/A
37.	An Taisce, Kerry Association c/o Catherine McMullin	N/A
38.	The Sea Energy Group c/o David Callaghan	N/A
39.	An Taisce c/o Ian Lumley	N/A
40.	Eileen O'Connor	N/A
41.	Eamonn O'Connell	N/A
42.	Thomas and Mary O'Connell	N/A
43.	Eamon McElligott	N/A
44.	Dept. of Environment, Heritage and Local Government. C/o Cian O'Lionáin	N/A
45.	John Mulvihill	N/A
46.	Shannon Regional Fisheries Board c/o Eamon Cusack	N/A
47.	Dr. Peter McCabe	N/A
48.	HEAT c/o Michael Smith	N/A
49.	John & Lily O'Mahony	N/A

50.	Raymond & Margaret O'Mahony & Family	N/A
51.	T. J. O'Mahony	N/A
52.	Brid O'Brien	N/A
53.	Ken Murphy	N/A
54	Clare County Council	N/A
55.	Kilrush Town Council	N/A
56.	An Bord Gáis	N/A
57.	Commission for Energy Regulation	N/A
58.	Health and Safety Authority	N/A

INTRODUCTION

This is a direct application to the Board for permission under section 37(e) of the Planning and Development Act, 2000, as amended by the Planning Development (Strategic Infrastructure) Act, 2006. The proposed development consists of a liquefied natural gas (LNG) regasification terminal. The proposed development would be an infrastructure development for the purposes of sections 37A and 37B of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act 2006. It would fall within the last category given at Item 1 of the seventh schedule, namely it would be *"an on-shore terminal, building or installation, whether above or below ground, associated with an LNG facility and, for the purpose of this provision, "LNG facility" means a terminal which is used for the liquefaction of natural gas or the importation, offloading and regasification of liquefied natural gas, including ancillary services"*.

Pre-application discussions were held with the Board under section 37B of the Act of 2000, as amended by the Act of 2006. On 11th September 2007, the Board served notice under section 37B(4)(a) that it was of the opinion that the proposed development would fall within the scope of paragraphs 37A(2)(a) and (c) of the Act, i.e. it would be of strategic economic or social importance to the State or the region in which it would be situate and it would have a significant affect on the area of more than one planning authority.

THE SITE

The site is located in a rural area on the north coast of County Kerry, approximately 14 kilometres north of Listowel, 4 kilometres west of Tarbert and 4 kilometres northeast of Ballylongford. It is about 37 kilometres north of the county town of Tralee.

The site is irregular in shape, with a stated area of 104 hectares (257 acres). It follows the north coast of County Kerry along the shoreline of the Shannon Estuary for a distance of about 1.6 kilometres, rounding Knockfinglas Point. As noted in

the Environmental Impact Statement, lodged with the application, it is in pasture, comprising primarily improved grassland, with some wet grassland adjacent to the Shannon Estuary. It is made up of a series of irregularly shaped fields separated by field hedgerows. The site is undulating, but generally rises upwards in a southeasterly direction from the Shannon Estuary. It rises from about 3 metres OD at the shoreline to a maximum of over 33 metres OD at its southeastern extremity. A small stream runs in a northwesterly direction through the site, discharging into the Shannon Estuary.

On its northeast and southeast sides, the site adjoins further agricultural lands. On its southeast side the site adjoins the coast road from Tarbert to Ballylongford, on the opposite side of which is a series of modern houses and further lands in agricultural use. On its northwest and north sides, the site adjoins the Shannon Estuary where, with the exception of the westernmost extremity of the site, much of the boundary consists of a sloping cliff base of glacial till, 3 to 5 metres in height. On its northwest side, also, an irregularly shaped area of land is deliberately omitted from the site. This coincides with a brackish lagoon and areas of reed beds, which have been designated as part of the Ballylongford Bay proposed Natural Heritage Area and part of the Shannon candidate Special Area of Conservation. The reed bed areas are generally located to the northeast of the small stream, which crosses through the site on its way to the Shannon Estuary.

Just inside the site boundary, a minor road runs for a distance of about 920 metres to terminate in a turning/parking area. This road is tourist sign-posted "Kilcolgan Strand". A private track leads off in a northeasterly direction just short of the termination of this road to give access to a farmyard complex. This farmyard complex is still in active use, but the three houses associated with it have been abandoned. A further private road leads off the coast road into the application site, about 500 metres northeast of the aforementioned cul-de-sac. This, too, leads to a farmyard complex where the dwellinghouses have been abandoned.

THE PROPOSED DEVELOPMENT

The proposed development would consist of many different elements.

There would be a jetty into the Shannon Estuary at the northeastern extremity of the site. This would be for the purpose of offloading LNG tankers. The jetty head would comprise of an unloading platform, six mooring dolphins and four breasting dolphins. The trestle would project out 345 metres from the existing coastline. At the jetty head, there would be a distance of 400 metres between the outer mooring dolphins. The trestle would include a roadway for operational and maintenance access and would support the LNG cryogenic pipelines, utility and fire protection systems and the sea water intake and discharge pipes for the vaporisation system. The jetty platform would be at 9 metres OD Malin Head. The jetty facilities would accommodate one LNG ship at a time. The applicants estimate that initially there would be 50 ships per annum and ultimately up to 125 ships per annum.

A seawater pump house would be located on the jetty to provide pumping capacity to circulate up to 12,000 cubic metres of seawater per hour to cater for the initial peak vaporisation capacity. An electro-chlorination unit would be located at the pump house to generate sodium hypochlorite from seawater for injection, at a controlled dosage rate, into the seawater circulation system. This would act as a

biocide to reduce and control the level of fouling within the system. After it has passed through the system and discharged back into the estuary, the hypochlorite would dissipate back into the seawater. Two outlet pipes would discharge into a concrete caisson about 100 metres seaward of the pump house. Initially, just one such pipe would be required. The returned seawater would be discharged into an open basin within the caisson. The presence of light within the basin would significantly affect the mechanism and increase the rate of dissipation of chlorine in seawater. The discharge ports of the caisson would be well below the surface at between minus 13 and minus 20 metres OD. The ports would be designed to promote initial dilution without causing a localised jet, which would cause scour in front of the outlet structure, or affect a berthed ship.

The liquid natural gas would be transferred, as a liquid, along pipelines to up to four (one or two initially) above ground storage tanks, each 50.5 metres in height and 96 metres in diameter. Each storage tank would comprise an inner tank and an outer tank, the outer tank providing a 100% backup in the event of leakage from the inner tank wall or floor. The insulated inner tank would be designed to store the LNG at a temperature of minus 160 degrees. All piping connections into and out of the tanks would be through their roofs.

Three low-pressure LNG pumps would be provided in each tank. There would be a provision for the addition of two further pumps per tank at a later date. The low-pressure send-out pumps would go to a boil-off gas condenser where the gas would be mixed with on-site generated nitrogen, when required, for gas quality conditioning. Thence the gas would be sucked via high pressure LNG booster pumps, increased in pressure to approximately 100 barg and would discharge into process piping going to the LNG shell and tube vaporisers (STVs). The pressurised LNG would be vaporised in three banks of shell and tube vaporisers. Here LNG would be converted back to the gaseous phase and warmed to approximately four degrees centigrade. The vaporiser would be constructed of stainless steel tubes through which the LNG/vaporised gas would flow surrounded by an intermediate heating fluid between the tubes and in the vessel shell. The vaporisers, including external staircases, would measure approximately 34 metres by 6 metres, in plan, and would have a height of 25.2 metres. Their long axii would be orientated in a northwest/southeast direction.

The terminal would have an administration building, process buildings, electrical substations, security buildings and maintenance/warehouse and equipment buildings.

A pond and embankment would be constructed on the existing stream to the southeast of the area of the Lower River Shannon candidate Special Area of Conservation, which has been excluded from the site. This would store between 150,000 and 160,000 cubic metres of water for use during construction, for hydrostatic testing of the tanks, manufacture of concrete and for use in the operation of the terminal, primarily as the main fire-fighting water source. The retaining embankment would be of conventional earthworks design, constructed from materials excavated from the site during the preparation of the terrace platforms for the tanks and process equipment.

The terminal would be developed in two or more phases. In the first phase, one or two of the LNG tanks, the vaporisation equipment and support facilities would be installed to handle an expected throughput of 11.3 million standard cubic metres per

day, but with sufficient capacity to enable a peak regasification rate of 17 million standard cubic metres per day. Ultimately, the additional tanks and additional vaporisation equipment and support facilities would enable the facility to handle up to 28.3 standard cubic metres per day.

The proposed development would employ 50 permanent staff, some of them working on shifts, as the plant would operate around the clock.

The site would be surrounded by a 2.9 metre high chain link outer security fence with barbed wire. Surrounding the tank farm and processing area there would be a 4-metre high inner security fence, which would be electrified.

The application includes the option of a materials off-loading jetty. This would be located at Knockfinglas Point at the northwestern extremity of the site. It would consist of a 200 metre long by 8 metre wide roadway trestle at 5 metres OD at the jetty deck level, rising to 7 metres OD on-shore. It would cross the foreshore at a high level, allowing pedestrian transit along the shore underneath. This jetty would be used by small cargo, roll-on roll-off (row-row) vessels and barges. If constructed, it would facilitate the delivery of certain construction materials by sea.

As required under section 37(e) of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006, an Environmental Impact Statement is included with this application. The submission of an Environmental Impact Statement would have been required, in any case under schedule five, part two of the Planning and Development Regulations, 2001 for an installation for the surface storage of natural gas where the storage capacity exceeds 200 tonnes.

The Environmental Impact Statement (Volume 2, Chapter 1, Section 1.7), notes the other regulatory framework governing the proposed development, as follows: -

- A Foreshore lease from the Minister for Communications, Energy and Natural Resources under the Foreshore Acts 1933 to 2005.

- Fire Safety Certificates from Kerry County Council.

- Notification to Health and Safety Authority (HSA) under the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2006 (SI No. 74 of 2006).

- Commencement Notice to Kerry County Council.

- Consent of the Commissioner of Public Works under Section 47 of the Arterial Drainage Act 1945 to the construction of the embankment.

The operation of the proposed LNG terminal would require certain permits and consents to be obtained:

- A licence for the operation of an LNG facility from the Commission for Energy Regulation (CER).

- A Greenhouse Gas Emissions Permit from the EPA.

The operation of the proposed LNG terminal would require an IPPC (Integrated Pollution Prevention Control) licence from the Environmental Protection Agency. The first schedule of the Environmental Protection Agency Act, 1992, sets out those activities, which require such a licence. The proposed development appears to fall under Category 9 - Fossil Fuels and, in particular, Category 9.4, which includes *"the… gasification…of…other carbonaceous materials … in installations with a processing capacity exceeding 500 tonnes per day"*. This means that should it decide to grant permission, the Board is precluded under section 37G(4) of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006, from imposing conditions controlling emissions from the activity or controlling emissions related to or following the cessation of the operation of the activity. However, it is open to the Board to refuse permission, if it considers the development unacceptable on environmental grounds, having regard to the proper planning and sustainable development of the area.

THE ENVIRONMENTAL IMPACT STATEMENT

A four volume Environmental Impact Statement has been submitted with the application. The four volumes consist of:

1. A non-technical summary,
2. The main text,
3. Figures, and
4. Appendices

The main text is subdivided into 19 chapters, as follows:

1. Introduction.
2. Project Need, Site Selection and Consideration of Alternatives.
3. Proposed Site and Project Description.
4. Planning and Policy Context.
5. Landscape and Visual Assessment.
6. Roads and Traffic.
7. Construction Activities.
8. Air Quality and Climate Assessment.
9. Noise and Vibration.
10. Terrestrial and Freshwater Ecology.
11. Marine and Estuarine Ecology.
12. Soils and Geology.
13. Hydrology and Hydrogeology.
14. Archaeological, Architectural and Cultural Heritage.
15. Human Beings.
16. Material Assets.
17. Other Impacts and Interactions.
18. Ancillary Projects.
19. Summary of Impacts and Mitigation Measures.

The Environmental Impact Statement is comprehensive. It meets the statutory requirements on the information to be contained in an environmental impact

statement as set out in Schedule 6 of the Planning and Development Regulations, 2001.

Significant aspects of the Environmental Impact Statement are discussed in my assessment.

THE NATIONAL DEVELOPMENT PLAN, 2007-2013

Chapter 7 of this Development Plan is entitled "Economic Infrastructure Priority". Included in this chapter is an energy programme. This would encompass some 8.5 billion euro in investment in energy over the period of the plan. The overall strategic objective of the energy programme will be to ensure security of energy supply nationally and regionally, which is competitively priced, in the long term, while meeting a high level of environmental standards. The ability of the economy to perform successfully is noted to depend critically on the supply of adequate, affordable and environmentally sustainable energy. Security of supply is seen as being of paramount importance to ensuring the continued economic development of the country and the spending under the plan would help ensure that objective. Without an expectation and delivery of a secure supply of energy, investment and output of the economy would suffer. Energy policy formulation is noted to be taking place against the background of volatile energy prices, concerns about security of supply and enhanced environmental standards and obligations. Amongst the projects envisaged to support priority energy investment needs is storage for greater security of supply. Key strategic projects are noted to include the construction of a strategic gas storage reserve on an all-Ireland basis. Non-public sources of funding for certain strategic energy infrastructure would be pursued, where suitable and appropriate, having regard to the overall goals of energy policy.

PLAN PROVISIONS

The Kerry County Development Plan, 2003 - 2009

The site lies within the functional area of Kerry County Council. It is thus affected by the provisions of the Kerry County Development Plan, 2003 - 2009.

Section 2.6 of the development plan sets out an overall strategy. The principal aim is to provide for an improved quality of life for all the people in the county, while regulating development in a sustainable manner. This can be achieved through the promotion of employment opportunities, efficient transportation and infrastructure, sufficient housing and social facilities, as well as a safe, healthy and clean environment, which all contribute to a good quality of life. The strengthening of rural communities is fundamental to the development plan. It is noted that many of these communities have experienced significant population loss in the past. This is not due to planning restrictions, but primarily to a lack of employment opportunities.

At section 5.2 of the development plan, on the location of employment land for enterprise and industry, the Tralee/Castleisland/Killarney corridor is designated as

an economic development corridor to lever investment into the area and assist in the development of the remainder of the county. Outside this corridor, subsection 5.2.9 of the development plan notes that lands have been identified at Ballylongford/Tarbert as suitable for development as a premier deep-water port facility and for major industrial development and employment creation.

Chapter 7 of the development plan is on transport and infrastructure. Subsection 7.2.12 refers to tourist routes. These are indicated on Map 7.8. The coast road linking Tarbert with Ballylongford, from which the application site would gain access, is marked as a tourist route on this map. Objective INF7-21 is to upgrade and improve the major tourist routes within the county. Improvements would include the provision of lay-bys, viewing areas, picnic areas and the improvement of finger posting and access ways to points of interest along such routes.

Chapter 9 of the development plan, on built heritage, notes that all known archaeological monuments in the county are contained in the Record of Monuments and Places (RMP) made under the National Monuments (Amendment) Act, 1994. It is noted that all the sites marked on the RMP constraint maps are protected under section 12 of that Act. At subsection 9.1.6, it is stated that the Council will comply with the recommendations and guidance of Dúchas – the Heritage Service, or other statutory bodies, in relation to planning applications, which potentially may impact on monuments and sites recorded in the Record of Monuments and Places. On the 6-inch Ordnance Survey maps, which accompany the Record of Monuments and Places, the only monument, which impinges on the application site, is recorded monument KE003-004, a rath at the eastern extremity of the application site, approximately 230 metres inland from the coast.

Chapter 10 of the development plan is on the natural environment. Subsection 10.2.3 notes that a list of Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas is given in Appendix 4 of the development plan and the areas are marked on maps 10.1 to 10.3. On Map 10.1, the Shannon Estuary, at the application site, up to the county boundary with County Clare, is shown to be a Special Area of Conservation. Ballylongford Bay, up to a point about 600 metres southwest of the application site is shown to be a Special Protection Area on Map 10.2. The entire bay, up to Knockfinglas Point, is shown to be a Natural Heritage Area on Map 10.3. Objectives EN10-19, EN10-20 and EN10-21 are to maintain the conservation value of Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas, respectively. At subsection 10.3.2 of the development plan, the coastal zone is recognised as being of intrinsic natural and special amenity value and to contain a number of areas that have been designated at European, national or county level. These designations are based on the conservation value of particular habitats and the species of flora and fauna contained within them, or the desire to preserve areas of high quality physical landscape. At subsection 10.3.4, the coastal zone is recognised as a vital asset with limited capacity to absorb development. It requires special attention and management to ensure its long-term sustainable use. This necessitates an emphasis on the scale and rate of development that can be accommodated, without damaging or detracting from the basic qualities and attractions of the coast. Objective EN10-25 is to designate a coastal development zone based on the importance of preserving marine habitats and coastal landscapes. Objective EN10-26 is to assist in the development of an Integrated Coastal Zone Management Strategy for the county, in conjunction with all other relevant agencies and bodies. At subsection 10.3.7, the Coastal Development Zone is defined as the area between high water mark and the nearest continuous coast road within visual

influence of the sea. The remaining objectives of the development plan in relation to coastal management, development above and below the High Water Mark, leisure and amenity and coastal protection are copied at the end of this report.

Chapter 11 of the development plan is on zoning and landscape. Subsection 11.2.10 on industrial/light industrial use, notes that the majority of land zoned for industrial use throughout the county will be within the urban zones. There are instances, however, where lands outside urban zones may be zoned for industrial purposes. These relate primarily to the strategic location of the lands or to locations where there is a need for industrial land in the area and where no alternative provision can be made. Section 11.4 is on views and prospects. It is recognised that there is a need to protect and conserve views and prospects adjoining public roads throughout the county for future generations. In assessing views and prospects, it is not proposed that this should give rise to the prohibition of development along these routes, but development, where permitted should not seriously hinder or obstruct these views and should be designed and located to minimise their impact. Objective ZL-7 is to preserve the views and prospects defined on maps 111 – 115. Map 111 shows views across Ballylongford Bay and of the Shannon estuary from a coastal road on the west side of the Bay, which would seem likely to include the application site.

Chapter 12 of the development plan is on development control and guidance. Section 12.10, on industrial and commercial development, requires that there should be adequate room on site for parking of vehicles, storage and stacking space. Any industrial or commercial development should not be injurious to the residential amenity of adjoining properties.

In March 2007, Variation 7 of the County Development Plan rezoned 188.8 hectares of the Shannon Development land bank at Ballylongford. 105 hectares were rezoned from Rural General to Industrial and 83 hectares to the west of the application site were rezoned from Secondary Special Amenity to Industrial. The application site is thus zoned for industrial use.

The Tarbert Local Area Plan

A local area plan for the town of Tarbert was adopted in 2006. Under the heading "demographic trends" it is stated that existing population projections point to a slight fall in population. Over the last census period employment levels had risen slightly and unemployment decreased.

In relation to industrial development, it is noted that a large bank of industrial land to the west of the town is envisaged for port related industrial uses. There were no immediate plans for the landbank, but continued national growth might generate opportunities.

Objective Z-8 is to develop a town centre car park shown on Map 2, with the capacity to service adjacent new development.

In relation to Bridewell Street, a significant proportion of through traffic is noted to comprise commercial vehicles. An additional road is proposed to remove such traffic from Bridewell Street. The road starts at the junction of Bridewell Street and the Ballylongford Road and exits directly onto the N69. The road would function not only as a relief road, but would provide the opportunity for the expansion of the

town centre, as well as a network of streets to accommodate a new housing area. This new road is the subject of objective T-1.

The Ballylongford Local Area Plan

A local area plan for the village of Ballylongford was adopted in 2007.

Under the heading "demographics" it is noted that there was a nearly 19% decline in population between 1996 and 2002. The census results for 2002 – 2006 had not then been published for small towns and villages, but on the basis of the then published statistics for the electoral divisions, it appeared likely that there would have been a continued drop in population.

On employment, it is noted that the industrial land known as the Ballylongford landbank is approximately two kilometres to the north of the village and comprises 600 acres, 281 of which are proposed to be developed as a liquefied natural gas import terminal. This development was noted over three-year period to provide between 250 and 750 construction jobs at any one point. On completion, the terminal would provide 50 permanent jobs.

On vehicular and pedestrian traffic, it is noted that the village is bisected by the Ballyline River. A bridge at the centre of the village provides the only river crossing for pedestrians and motors. It is only marginally wide enough to accommodate two cars and lacks pavements. Given the width of the bridge, it would not be possible to provide a pavement on even one side. A pedestrian bridge would make an important contribution to safe pedestrian movement. Such a footbridge is the subject of objective T-5.

The Clare County Development Plan, 2005

The north shore of the Shannon estuary, opposite the application site a minimum distance of about 2.4 kilometres is in County Clare. This side of the Shannon Estuary is thus affected by the provisions of the Clare County Development Plan, 2005.

Chapter 4 of the Clare County Development Plan is on economic development. Section 2.2 notes that whilst Bunratty Castle, the Cliffs of Moher and Ailwee Cave provide a focus for visitors to the county, the landscape quality of the Burren, Loop Head, the Shannon Estuary, Lough Derg and the upland hills of the Slieve Aughties, Slieve Bernagh and Slieve Callan create a diverse landscape context for both organised and independent visits to the area.

Chapter 5 of the Clare County Development Plan is on the environment. Under the heading "Coastal Zone Management", section 4.1 notes that the county possesses an extensive and contrasting coastline on the Shannon Estuary to the south, along the Atlantic coast to the west and into Galway Bay to the north. The coastal area offers settlement opportunities where people can exploit the coastal zone for transportation, farming, industry, recreation and education. Such growth and development needs a full understanding of the vulnerability of the coastline to the dynamic natural processes of erosion, accretion and climate change. The development of port and harbour facilities along the Shannon Estuary to support the growth and development of marine industry is important to the economic growth of West Clare and environmental issues must be balanced with the economic needs of the area and the requirements of those industrial activities. Under the heading

"Landscape", it is noted, at section 5.3, that the Heritage Council has published a Landscape Character Assessment for County Clare. Landscapes have been classified as unique, special, or of high, moderate or low sensitivity. Landscapes classified as special or unique are protected as vulnerable landscapes where there would be a presumption against development that has a significant adverse impact on the character, integrity and uniformity of the landscape. The highest valued landscapes of the county include the Shannon Estuary. Policy CDP46 states that in areas identified as being vulnerable landscapes, the planning authority would only normally permit proposals for development of the highest quality in terms of siting and design and where the development would not adversely impact, to a significant extent, upon the character, integrity or uniformity of the landscape. A map, included in the development plan, identifies the coastline opposite the application site as a vulnerable landscape. Policy CDP51 is to require those seeking to carry out development in the environs of a scenic route to demonstrate that there would be no adverse obstruction or degradation of the views towards and from vulnerable landscape features, or significant alterations to the appearance or character of these areas. On the map in the development plan, the coast road from the vicinity of Moneypoint, almost as far as Kilrush is designated a scenic route.

The Kilrush Development Plan, 2002.

Within County Clare, Kilrush, as a town council, has its own development plan, the Kilrush Development Plan, 2002. Kilrush is located at a distance of about 6 kilometres to the northwest of the application site. Under the development plan, the coastline along the main part of the River Shannon is show to be an area from which there are protected views. These protected views extend over a distance of about 350 metres. Policy N4 states that proposals for development that would interfere directly or indirectly with the enjoyment of such views will be permitted only where it can be clearly demonstrated that:-

a. There would be no obstruction to the view from a public place
b. The development would complement the enjoyment of the view and
c. The development would not conflict with other policies in the plan.

However, it appears from section 36, under the heading Protection of Views, that the views at this location refer to those of the distant islands and Kerry hills and the foreground of the port and beach.

The West Clare Local Area Plan, 2003.

This local area plan applies to the electoral area of Kilrush and the district electoral division of Killone. It excludes the area of the Kilrush Development Plan, 2002.

Policy ENV3 of the local area plan refers to protection of areas of nature conservation. This policy and that set out at section 34 immediately following this policy, covering the Shannon Estuary, is copied at the end of this report. The coastline from Kilrush to Moneypoint, for a distance of up to a kilometre inland, is designated as visually vulnerable on Proposals Map A.

The Limerick County Development Plan, 2005

The boundary between counties Kerry and Limerick is at a distance of about 5

kilometres to the east of the application site just beyond the town of Tarbert and Tarbert Island.

Chapter 2 of the Limerick County Development Plan sets out an overall strategy. It includes a vision statement whereunder the County will adopt a positive and sustainable approach to balanced development, thereby enhancing the lives of people who live in, work in and visit the county, while protecting the natural and built environment. A number of strategic themes is put forward. Amongst these themes are Environment and Heritage and Shannon Estuary Development. The development plan text on these themes is included at the end of this report.

Chapter 7 of the Limerick County Development Plan is entitled "Environment and Heritage". The relevant sections of this chapter are included at the end of this report. NHA Map 12 in the development plan shows Natural Heritage Area 001386 extending out a maximum of 1 kilometre from the coast and 2 kilometres along the coast, immediately to the east of Tarbert. SAC Maps 6, 7, 8 and 14 in the development plan show Special Area of Conservation 002165 extending outwards to the County boundary in the Shannon estuary and eastwards from Tarbert right up to Limerick City. SPA Map 5 in the development plan shows Special Protection Area 004077 almost coinciding with Natural Heritage Area 001386.

Chapter 9 of the Limerick County Development Plan is entitled "the Shannon Estuary". Again, the relevant sections of this chapter are copied at the end of this report.

THIRD PARTY OBSERVATIONS

As noted at the commencement of this report, 53 submissions were received by the Board in connection with this application. The vast majority of the letters take the form of objections, but 10 either express unqualified support for the proposal, or welcome the proposal in principle, on the assumption that the Board will grant permission, subject to the imposition of appropriate safety and environmental conditions.

Of the objections, the major areas of concern are safety, visual amenity, effect on the environment, reduction of property values, and inadequacy of the road system and traffic management.

Safety

Issues in relation to safety are as follows

- The risk from an unignited vapour cloud travelling as much as 12.4 kilometres before reaching an ignition source.
- The non-disclosure of the Quantitative Risk Assessment (QRA) document to the public or the Board, contrary to article 6 of the EU EIA directive.
- The implications of an exclusion zone for tankers
- The high probability of an accident
- The splitting of risk assessment with the Shannon Foynes Port Company.
- The risk from a terrorist attack, especially to an American-owned operation.
- The need for a full fire fighting system on site
- The liability and reliability of an offshore company incorporated in the

Caymam Islands.

- The need for an emergency plan for up to 12.4 kilometres from the site.
- The risk of contaminants altering the behaviour and flammability of escaping gas in the event of an accident.
- The code of practice to be followed in relation to safety.

Visual amenity

Issues of concern in this regard are as follows:-

- The sheer size and alignment of the tanks.
- Failure to sink the tanks for cost reasons.
- The fact that other sites are in port areas e.g. Milford Haven and Zeebrugge.
- Moneypoint and Tarbert are unacceptable precedents, as they would not be permitted today.
- The need for verification of the accuracy of the photomontages
- The "prison-like" boundary treatment, which has not been shown on photomontages.
- There would be pylons and over ground power lines, unless the latter are placed underground.

Environment

Issues in relation to the environment are as follows:-

- Impact on terrestrial wildlife from loss of habitat, including removal of hedgerows and demolition of buildings used by bats.
- Impact on marine wildlife, including dolphins from construction works and pumped chlorinated seawater at a different temperature.
- Unsuitability of the pumped seawater system for cooling in preference to use of some of the gas for regasification heating.

Noise and Disruption

Issues in relation to noise and destruction are as follows:-

- Noise, air pollution and dust.
- The 4-year construction period is excessively long.
- Round the clock construction of certain elements is unacceptable.
- There could be intermittent, "wait and see" construction over the 10 year life span permission sought.
- There would be excessive traffic, with up to 170 truck movements per day.
- Blasting would be unacceptable.
- The pipeline would run directly past houses.

Property Values

Issues in relation to property values are as follows: -

- Experience elsewhere suggests that there could be a drop of as much as 30% in property values adjacent to an LNG storage and regasification facility.
- The proposed development would effectively sterilise adjoining lands from development, including the rest of the land bank.

- Despite a likely fall in property values, there would be increased charges for home insurance.

Inadequacy of the road system and traffic management

Issues in relation to the inadequacy of the road system and traffic management are as follows:-

- The road system would be inadequate, even with the proposed upgrading.
- There is a need for a traffic management plan for Tarbert and for the surrounding area.
- There is a need for a relief road through the market in Tarbert, as in the local area plan.
- There is a need to upgrade the road from the site to Ballylongford, as well as the County Council agreed upgrading to Tarbert.
- The safety of school children would be endangered by traffic.
- The upgrading of the road from Tarbert should be completed prior to commencement of the construction.
- The 3 bridges between Ballylongford and the site need to be widened as does the bridge in Ballylongford, itself.

Loss of right of way

Concerns are expressed that there would be a loss of a right-of-way to the foreshore and, diagonally across the application site to a plot, enclosed by the site, adjoining the foreshore and used for the keeping of ponies and cattle.

Inadequate consideration of alternatives

Issues in this regard are as follows: -

- Failure to consider the possibility of gasification on-board tanker and then pumping into the Kinsale field reservoir.
- Failure to consider the possibility of an offshore terminal pumping into the Kinsale field pipeline.
- Failure to consider the fact that gas will be available via the inter-connector from the LNG terminals at Milford Haven.
- The development would be premature as it would undermine the White Paper on a sustainable energy solution for Ireland

Other matters

Other matters raised in the letters of objection include the following:-

- The proposal would entail project splitting, with the terminal, pipeline, electricity power lines and road improvements all being considered separately.
- There should be an annual contribution of 3% of net turnover to the community.
- There should be a requirement that priority be given to employing persons living locally.
- The County Council should spend some of the levies on the development of Ballylongford.
- There should be spurs on the gas pipeline to Ballylongford, Tarbert, Listowel and Tralee.

- The archaeological heritage of the area should be preserved and the old stone- built houses should not be demolished.
- An Bord Pleanala has prejudged the issue of strategic infrastructure.
- The proposal is not necessary to the strategic goal of the White Paper on sustainable energy solutions for Ireland.
- The proposal is a private development and the gas would be sold on the open market. It would not guarantee security of supply.
- There has been no real two-way discussion of the project. There has been a lack of time for a real debate. Public participation has been impossible owing to the different bodies involved, such as the Environmental Protection Agency, the Health and Safety Authority and An Bord Pleanala. This is in contravention of the European Convention on Human Rights Act, 2003.
- The proposed development would be contrary to the purpose of the variation to the development plan, insofar as it would constitute a hazardous chemicals installation.
- There was no Strategic Environmental Assessment of the rezoning.
- The offshore area is not zoned industrial, but is a Special Area of Conservation.

SUBMISSION FROM KERRY COUNTY COUNCIL

A submission has been received from Kerry County Council in relation to this application. It is presented in 3 parts, namely, a County Manager's Report, a written submission from one of the councillors, submitted at a council meeting to discuss the proposed development, and the views of the individual members, as recorded at that meeting.

The Submission of Councillor Liam Purtill

This submission was received by the County Council prior to the holding of a meeting on 26th November 2007 and was incorporated into the Manager's Report presented to that meeting.

While welcoming the proposed development, Councillor Purtill is keenly aware of the safety and environmental concerns of local residents. He asks that a number of measures be addressed, as follows:-

- Health and safety measures should be stringent and subject to the most rigorous inspections on a regular and ongoing basis.
- The coast road from Ballylongford to Kilcolgan must be upgraded, bends removed and the Lislaughton Abbey Bridge widened, prior to commencement of construction.
- The possibility of permissions for residential development should not be prejudiced.
- The applicants should make a significant contribution towards the erection of a footbridge at Bridge Street, Ballylongford.
- Priority should be given to local contractors and local labour during the construction phase
- Shannon Development should ensure that the existing shelterbelt of trees will not be allowed to grow to such an extent that they will block views to the estuary.

The Manager's Report

At an early stage, this report places the site in its context. It is noted that there is a number of residential units in the general vicinity, mainly on the southern side of the coast road. In 1978, under the planning authority's Reg. Ref. 78/2422, an application was received for an electrolytic zinc refinery, but no decision issued. In 1981, an application was received for an oil refinery, tank farm and marine terminal under Reg. Ref. 81-2426. Permission was granted for this development. Permission was granted for the demolition of all existing dwelling houses, out buildings and derelict buildings under Reg. Ref. 02-2292. Amongst significant applications noted in the general vicinity is a permission granted for the erection of a 23-turbine wind farm, electrical substation and 40-metre meteorological mast at Carhoonakinely. The report concludes, in relation to site context, that the site and adjacent lands have long been owned by Shannon Development/IDA and that there is a history of large scale industrial development applications on and adjacent to the site. The Kerry County Development Plans of 1989 and 1996 identify the site and adjacent lands (the Ballylongford and Tarbert land bank) for industrial use.

Like the Environmental Impact Statement, the report notes the national, regional and local policies of relevance to the proposed development.

The International Energy Agency in its "Energy Policies of IEA Countries - Ireland 2007 Review" holds that the government should "*consider, on an all-Ireland basis, taking into account projected demand increases, the potential of natural gas storage and an LNG terminal for enhancing the country's security of supply*".

The EU Council Directive 2004/67/EC establishes measures to safeguard the security of gas supply in the EU. Storage facilities and LNG regasification terminals, such as that proposed, are included in the instruments that the Directive proposes that member states can use to enhance the security of supply.

The European Commission Green Paper "a European strategy for sustainable, competitive and secure energy (2006)" recommends a stock taking and action plan covering a number of key goals and instruments, including a clear policy on securing and diversifying energy supplies. Such a policy is noted to be necessary both for the EU as a whole and for specific member states and it is especially appropriate for gas. There should be an upgrading and construction of new infrastructure, notably new gas and oil pipelines and liquefied natural gas (LNG) terminals. Such terminals could serve markets that are presently characterised by a lack of competition between gas suppliers.

The National Development Plan 2007 – 2013 sets, as an overall objective of an energy programme, the security of supply nationally and regionally, a supply which is competitively priced for the long term, while meeting a high level of environmental standards. Within the National Development Plan's, Strategic Energy Infrastructure Sub-Programme, the projects envisaged will support priority energy investment needs, including storage for greater security of supply. Key strategic projects include the construction of a strategic gas storage reserve on an all-Ireland basis. Non-public sources of funding for certain strategic energy infrastructure will be pursued, where suitable and appropriate, having regard to the overall goals of energy policy. The proposed LNG terminal, which would be developed using private funding, accords with the objectives of the National Development Plan.

The White Paper "delivering a sustainable energy future for Ireland" published in early 2007 includes an Energy Policy Framework 2007 – 2020 which envisages continued active encouragement of the private sector to invest in gas storage facilities and LNG and intends to put in place an all-Ireland strategy by 2008 for gas storage and LNG facilities.

Under the National Spacial Strategy, 2002 – 2020 prime considerations, in terms of spatial policy, are the development of an energy infrastructure on an all-Ireland basis, the strengthening of energy networks in the West, Northwest, Border and Northeastern areas, in particular, and the enhancement of both the robustness and choice of energy supply across the regions, through improvements to the national grids for electricity and gas. The proposed development is held to accord with the provisions of the NSS. It would provide an alternative source of gas supply to the island of Ireland and thereby enhance security of supply, in a sustainable manner, to the whole island.

The provision of gas to north Kerry would also contribute to balanced regional development. The Southwest Regional Planning Guidelines predated the adoption of the Kerry County Development Plan, 2003. They noted that an extension of the gas network to the Kerry Hub would help provide an alternative energy supply and act as a stimulus to economic development. They noted that gas could be a key catalyst in securing industrial development.

Although the strategic development plan for Foynes Port makes reference to the application site, only insofar as to recognise the existence of the Shannon Development land bank, the Shannon Foynes Port Company, nevertheless, has welcomed the Shannon LNG terminal proposal as fitting comfortably with its long-held aspiration of sensible development of the lower estuary.

The report continues by quoting extensively from the Kerry County Development Plan, 2003 – 2009. Also quoted are the Tarbert Local Area Plan, 2006 and the Ballylongford Local Area Plan, 2007. The report concludes, with reference to the county development plan and the local area plans, by noting that the application site is zoned for industrial use. The planning authority considers that the proposed development would not contravene any section of the plan and that the objectives of the plan support the provision of industrial development at this location, capitalising on its strategic coastal location. The proposed development accords with the development plan and with the proper planning and sustainable development of the area.

Under the heading "Assessment", the report reviews the need for the scheme. It accepts the submission in this regard, contained in chapter 2 of the EIS. In terms of alternatives, the report notes the critical requirements for a development of this nature. Eighteen locations and potential coastal sites were identified. Eight were ruled out, as they did not have the required water depth. Six were unsuitable due to their exposure to adverse weather conditions and sea swell. The remaining locations, other than the Shannon Estuary were eliminated on the basis of restricted manoeuvring room, lack of onshore infrastructure, shallow depth requiring extensive dredging, close proximity to other large passing marine traffic and high elevation requiring additional pumping systems to be installed. Of eight sites examined in the Shannon Estuary, the present site was chosen on the basis of its water depth, topography, infrastructure and zoning. The possibility of an offshore

site for the terminal was eliminated due to lack of operating experience, limited operating history, lack of proven technical performance and restrictions on access by conventional LNG ships. Having considered the methodology and criteria used in the site assessment, the planning authority expresses satisfaction that the location of the facility has been justified.

The report accepts the location of the jetty at the eastern end of the site which minimises the length of jetty necessary to reach deep water. The T-shaped jetty proposed is appropriate to the current directions, navigation and structural considerations.

The planning authority is satisfied that the location of the tanks at the eastern end of the site reduces the need for process pipework, excessive jetty construction and allows screening by the more elevated land to their south.

The adoption of a twofold vaporisation, depending on seasonal seawater temperature, is recognised as giving three categories of emissions, namely,

- The discharge of cold water into the estuary.
- The presence in the discharge water of chlorine at 0.2mg per litre and
- The emissions associated with the burning of natural gas when the estuary seawater is too cold. The planning authority holds that these emissions would not have a significant adverse impact on the ecology or natural environment of the area.

The report notes the high water demand of the proposed development during the construction phase. The creation of an on-site pond is accepted as the only practical means of meeting this demand. As well as providing a source of fire fighting water during the operational phase. By maintaining a regulated flow of 10 litres per second, it is considered that the impact on the downstream candidate SAC and proposed NHA would be mitigated and the variability of current winter and summer flows would be eliminated which, it is submitted, would have a positive impact on these designated habitats.

On visual impact and landscape assessment, the report holds that the "minor structures and process equipment" would not have a significant visual impact and, relative to the scale of the tanks and jetty, their impact would be negligible. The report recognises that due to their size, the holding tanks would have a visual impact varying from slight negative to significant negative, depending on the point from which they are viewed. The report notes the precedent of other major developments on the Shannon Estuary, namely Aughinish Alumina, Moneypoint Power Station and Tarbert Power Station. This is not a pristine unspoilt landscape. It is submitted that the presence of such developments along the estuary is established among the population and that the proposal would not alter their image of the estuary or the landscape. Again, the backdrop of higher land to the south of the holding tanks is noted. The landscape character assessment carried out by the county council was for the purposes of residential development and not large-scale industrial development. It does not provide relevant information in the context of a development of this scale and nature. The landscape of rolling hills of agricultural land is neither unique nor rare, either in the county or throughout the country. The report notes the provisions of the county development plan, namely, objectives ZL11-1, ZL11-2, ZL11-3, ZL11-5 and ZL-7, sections 5.2.9 and 11.2.10, objective ECO 5-5, variation 7, and section 11.4.1. The report notes the inclusion in the

development
plan of a view and prospect from the Carrig Island local road, approximately 2.5 kilometres to the west of the site and that an additional view and prospect is identified on Knockanore Mountain, about 10 kilometres to the southwest of the site. These views and the post-development views are noted to be contained in EIS photomontages 5.3.11 and 5.3.14, respectively. The planning authority holds that, as required under section 11.4.1 of its development plan, the proposed development does not seriously hinder or obstruct these views. The development, while clearly visible, does not dominate the landscape. The planning authority considers that the mitigation measures proposed, while not to any extent screening the development, have given consideration to landscape and visual impact issues from site selection stage through to the tank design and construction stage.

On roads and transportation, it is noted that the existing access to the site from the R551 Tarbert Ballylongford regional road is via a local road, the L1010. This is deficient in width and alignment for construction traffic associated with the proposed development. The planning authority considered 3 options, namely

- Widening the L1010 between Ballylongford and the development – discounted on the basis of lack of capacity in Ballylongford village, itself.
- The creation of a new linkage from the site to the R551- discounted on the basis that this would require about 3 kilometres of new road and associated severance of landholdings and the likelihood of a lengthy CPO process.
- Widening the L1010 from the application site to the R551 at Tarbert. Such widening would benefit any future development east of the LNG terminal. Traffic calming measures could be incorporated at Tarbert Comprehensive School at the eastern end of this road. This third option is the preferred solution.

During the construction phase, peak traffic flow on the L1010 would increase from 35 vehicles per hour up to 455 vehicles per hour. The road would need to be upgraded to a standard capable of accommodating two passing HGVs. The county council intend to proceed with the Part 8 planning process for the identified measures necessary to upgrade the coast road from the site to Tarbert. During school opening and closing times, a ban on HGV traffic would be required and this would be enforced with vehicle monitoring cameras. The staggering of shift times during the construction period would be required to be agreed with the planning authority. The planning authority seeks funding in the sum of €595,000 towards the upgrading of Bridwell Street in Tarbert and the provision of an off-street car park at the rear of Bridewell Street, the latter in accordance with the Tarbert Local Area Plan, having regard to the increase in HGVs through the village arising from the construction phase of the proposed development. A mini-roundabout would be required at the junction of the L1010 and the R551 in Tarbert to facilitate right turning movements off the R551. A full traffic management plan would be required.

On public water supply, notwithstanding the intention to impound an onsite stream to create a pond for construction water, the planning authority considers it necessary to increase the capacity of the current water supply to the site by providing a 160mm pipe in place of the existing 50mm pipe. The planning authority would carry out this work in the event of permission being granted.

On noise and vibration, the report notes that the projected increase in noise levels at noise sensitive locations is considered to be negligible. The construction noise is also predicted to be comfortably within construction noise limits at noise sensitive locations. Nevertheless, the planning authority considers that the ambient noise levels for the area, including all noise sensitive locations, should be established in terms of LaeqT90, LaeqT10, etc. There should be a regular monitoring regime at these locations and this should be a condition, in the event of permission being granted. Exceedance of noise limits at these locations would require proposals for mitigation measures to be approved by the planning authority. The planning authority considers that the mitigation measures proposed during, and as a result of blasting, would minimise any adverse land-based amenity effects. The planning authority considers that the Board will consider the impact of noise and vibration on the estuarine environment independently.

No comment is offered in relation to terrestrial and freshwater ecology.

The matters of marine and estuarine ecology and soils and geology are stated to be considered independently by the Board.

On hydrology and hydrogeology, it is noted that the main impact would be on the downstream protected habitats and the draw down of ground water levels due to the cut and resultant exposed rock face. There is a potential adverse effect on the yield of groundwater sources within an estimated 500 metres of the exposed face. Monitoring well yields is proposed and, if these are reduced, an alternative supply of water would be provided. The likelihood of such an impact is difficult to assess. Avoiding cut-in would mean that the elevation of the tanks would increase. Accordingly, the planning authority considers the mitigation measures to be reasonable. The planning authority considers that the impact on the protected habitat site may, in fact, prove to be beneficial through maintaining a constant flow of water.

On archaeology, architecture and cultural heritage, the report notes the identification of nine features of definite or possible archaeological significance. Three of these are farm complexes for which there would be "full record in advance of removal". A disused well of random rubble would be treated in the same manner, as would a random rubble wall. The remaining 4 features would not be impacted upon. The planning authority expresses satisfaction in relation to the archaeological, architectural and cultural heritage aspect of the proposed development.

On human beings, it is noted, in relation to health and safety, that the proposed development is defined as a top tier site in accordance with the threshold limits specified in annex 1 parts 1 and 2 of the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006. A quantified risk assessment (QRA) has been carried out. The Health and Safety Authority defines three zones around existing establishments related to risk levels. For new establishments, the HSA requires that the nearest residential property should be outside zone 2. This is the case with the present application. It is noted that the Health and Safety Authority will carry out an independent assessment of the application. The planning authority is satisfied that emissions from the plant would not cause environmental pollution, but that the plant, will, in any case, be the subject of an IPPC licence issued by the EPA.

On employment and economic activity, it is noted that the construction period would generate on average 350 jobs over 48 months, peaking at 650. Fifty direct and fifty indirect jobs are forecast for the operational period. Additional jobs would be created throughout the economy, related to the supply of materials during the construction phase. The project would cost approximately €500,000,000. There would be ongoing benefits to the national and local economy from more competitive energy supplies, income tax, harbour dues, rates and the use of local service providers. In the longer term, the development might attract other industries and development to the region. The planning authority considers that the proposed development would have a minor impact on the use of the estuary due to the necessity for an exclusion zone around the jetty when a ship is present. It holds that the impact on agriculture would be negligible due to the loss of agricultural land. The impact of the cooling water would not have an adverse effect on fisheries, but the existing farm track would no longer be available to anglers for access to the shore. The planning authority considers that the visual impact would not significantly alter the existing potential tourism product for the area. Recreational activities would not be significantly affected and any potential tourism or recreational impacts and resultant income implications should be considered in the context of alternative year-round job creation with the possibility of attracting further projects.

The planning authority disputes the finding at section 15.5.5 of Volume 2 of the EIS that the Visual Impact Assessment concluded that the development would have a moderate to slight negative impact on views from nearby residences. It is noted that no reference is made to Photomontages 3 and 4 in Volume 2, Chapter 5 of the EIS, which show the most obvious impact, but section 5.5.3.1 states *"the development will give rise to significant levels of visual impact for properties and viewers within the immediate areas, south, south-west and west of the site: and on the immediate north shore of the estuary. From properties and roads with open views, the development will be a prominent visual mass and have significant negative impact"*. A similar opinion is contained in the last paragraph of section 5.5.5. The planning authority notes that the purchase of a site or property does not convey rights and restricting development on adjoining lands, which might obstruct views. The planning authority concludes, in relation to potential impact on human beings, that there would not be an adverse impact and there may be positive impacts in terms of employment, population growth and community development.

On material assets, the planning authority holds that in general, there would be a positive impact arising from improved road infrastructure, an upgraded water supply and the provision of a gas pipeline connecting to the national gas supply network. In terms of property values, a loss of view from the houses to the south would need to be weighed against a possible appreciation in value due to proximity to the plant for the future workforce, both during the operational and construction phases. The planning authority notes the long history of the site, which should have given rise to an awareness of the potential for major industrial development.

In recommending a grant of permission, subject to conditions, the planning authority notes the strategic national importance of the project, giving greater security of energy supply. The Environmental Impact Statement fully meets the statutory requirements. Alternatives have been considered. The development accords with the County Development Plan and with the proper planning and sustainable development of the area. Infrastructural deficits would be addressed.

THE ORAL HEARING

An Oral Hearing was held in relation to this proposed development at the Brandon Hotel, Tralee, Co. Kerry, from 21st January 2008 – 30th January 2008. A full transcript of this Oral Hearing is forwarded to the Board. Much of this transcript is based on oral presentations of written submissions to the hearing, but the oral presentations of many of these written submissions were substantially abbreviated, at least partly at my request, in order to expedite the hearing and avoid unnecessary repetition of material, which had already been presented in the application and the accompanying Environmental Impact Statement. The unabridged written submissions are forwarded to the Board.

ASSESSMENT

I now consider this application under the relevant sub-headings, which follow.

The National Interest

Following the holding of two pre-application meetings between the Board and the then prospective applicants on 2nd May 2007 and 27th June 2007, the Board served notice on the applicants under section 37B(4)(a) of the Planning and Development, Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006 that in its opinion, the proposed development fell within the scope of paragraphs 37A(2)(a) and (c) of the Act. Section 37A(2)(a) holds that a proposed development would, if carried out, be of strategic economic or social importance to the State or the region in which it would be situate.

This opinion followed, chronologically, from a report from the Senior Planning Inspector involved in the pre-application discussions with the applicants. He recommended that *"having regard to the nature and proposed location of development, to the matters arising in the pre-application consultations between the Board and the prospective applicant, to the advice of the Board on those matters and to the relevant legislative provisions, I recommend that the Board decide that the development in question constitutes strategic infrastructure development, as defined in section 2(1) of the Planning and Development Act, as amended by section 6 of the Planning and Development (Strategic Infrastructure) Act, 2006."*

During the first pre-application meeting, the applicants advised that Ireland imports 85% of its gas needs from the UK, that the Corrib and Kinsale gas reserves would not be capable of meeting Irish demand, that Ireland is consuming about 600 million cubic feet (17 million cubic metres) of gas per day and that the proposed development would be a good alternative to pipeline gas and that liquefied natural gas would compete competitively within the Irish market. (This figure may relate to the 32 counties, as it greatly exceeds the CER figure – see below).

The applicants elaborate on the need for the project at section 2.2.1 of volume 2 of the Environmental Impact Statement, as follows:-

- Existing gas reserves in Ireland and the UK are rapidly depleting resulting in steep increases in the price of natural gas and electricity in the face of

continuing demand growth;

- Gas is the fuel of choice for electricity generation on environmental and energy efficiency grounds;

- The development of an LNG terminal in Ireland would allow access to more diversified gas supply sources providing increased energy supply security;

- Access to LNG would reduce Ireland's need for less environmentally friendly fossil fuels such as coal and oil;

- Additional gas supplies for the Irish market would increase the level of competition in the market and should bring downward pressure on wholesale gas prices;

- Increased deliveries of natural gas on a flexible basis would support the development of additional supplies of renewable energy, in particular wind, which must be backed up due to its intermittent production profile.

It is noted that Irish wholesale gas prices are set primarily by the UK Natural Balancing Point price, to which the cost of transporting gas from the UK to Ireland must be added (EIS section 2.2.2). The UK is rapidly developing its own LNG terminals and by developing the capability to import LNG directly, Ireland would avoid the added cost of transporting LNG derived natural gas through the UK grid and across the Irish Sea. The development of the proposed LNG terminal would add more storage and deliverability to the Irish market, more cost effectively than would be the case if Ireland relied on the UK market to provide these services.

The Commission for Energy Regulation (CER) forecasts a rise in natural gas demand from 12.5 million cubic metres per day in 2006 to 19 million cubic metres per day by 2013. This would mainly arise from new gas fired-power stations required to meet the increasing demand for electricity. Gas-fired power generation plants would be expected to provide more short-term flexibility in the electricity supply market. They, in turn, would require more flexible natural gas supply and an LNG terminal would be one of the best options to bring such flexibility (EIS section 2.2.3). Greater dependence on wind power generation would further increase the need for such flexibility in gas supply. For every megawatt of wind power, 0.8 megawatts of gas power are required as backup to ensure system reliability. Shannon LNG would be uniquely positioned to bring additional supplies of natural gas on competitive terms as well as providing more flexible send-out and capacity profiles than other gas suppliers, thereby increasing the potential competitiveness of both the gas and electricity markets (EIS section 2.2.3). As LNG can be sourced from any country with a liquefaction plant, it is claimed to provide an unmatched diversity of supply and security by comparison with long distance pipeline supplies (EIS section 2.2.4).

The Environmental Impact Statement (volume 2, section 4.5.2) notes various provisions of the National Spatial Strategy, 2002-2020. It refers to the Strategy's finding that the contribution of the Southwest to balanced regional development would be critically dependant on the development of Kerry. It advocates building on the complementary strengths of Tralee and Killarney as a hub. In relation to the Mid-west (Counties Clare, Limerick and North Tipperary) balanced regional

development would require the enhancement of the Limerick-Shannon gateway at national/international level. The National Spatial Strategy is noted to set out prime considerations in terms of energy, as follows

- *"Developing energy infrastructure on an all-island basis to the practical and mutual benefit of both the Republic and Northern Ireland.*
- *Strengthening energy networks in the West, North-West, Border and North-Eastern areas in particular.*
- *Enhancing both the robustness and choice of energy supply across the regions, through improvements to the national grids for electricity and gas"*

It is submitted, in the EIS, that the proposed development would provide an alternative source of supply to the island of Ireland, thus enhancing security of supply in a sustainable manner to the whole island. The provision of gas to north Kerry and west Limerick would strengthen the gas grid in the region, as well as nationally and contribute to balanced regional development.

In my view, the relevance of the proposed development to the objectives of the National Spatial Strategy is tenuous. The Strategy is primarily concerned with strengthening the infrastructure in terms of the network or grid. The proposed development, in itself, would do nothing in this regard. Even the preferred pipeline route corridor (EIS volume 2 chapter 18 and volume 3 figure 18.1), which would connect to the national gas grid in the vicinity of Foynes, would do little to enhance the network, although there might be a possibility of a spur to Tarbert off this pipeline.

The Environmental Impact Statement (volume 2 section 4.5.1) states that the overall objective of the energy programme of the National Development Plan, 2007-2013, would be to ensure security of supply nationally and regionally, a supply which is competitively priced and for the long term, while meeting a high level of environmental standards. Some 8.5 billion euro will be invested in energy over the period of the Plan. The National Development Plan is quoted as follows

"The ability of the economy to perform successfully depends, critically, on the supply of adequate, affordable and environmentally sustainable energy. Security of supply is of paramount importance to ensuring the continued economic development of the country and the spending under this Plan will ensure that objective. Without an expectation and delivery of a secure supply of energy, investment and output, the economy will suffer. Therefore, during the Plan period, there will be significant investment in crucial infrastructure". (NDP page 138) The National Development Plan refers to a jointly commissioned study to assess the medium to long term security of gas supply on an all-Ireland basis, including the scope for a common approach to gas storage on the island and liquefied natural gas facilities (NDP page 101). The Plan notes Ireland's growing dependence on imported fossil fuels (with the consequent growth in greenhouse gas emissions), which highlight the need to mitigate the economic, social and environmental risks through new policy approaches. Security of supply and lessening the dependence on any one source of energy or fuel type will be a key challenge. Annual electricity demand is forecast to grow by 3.1% and annual gas demand by 6.5%.

The Environmental Impact Statement notes that the proposed terminal would be able to source natural gas from a diverse worldwide range of countries and suppliers, thereby enhancing security of supply and ensuring the diversity of energy

supply to compete with oil or coal in a sustainable manner.

The Environmental Impact Statement (section 4.5.3) notes the White Paper, "Delivering a Sustainable Energy Future for Ireland", published in 2007. This holds that "*security of energy supply is crucial for the economy and society. Security of supply requires that we have reliable access to oil and gas supplies and the infrastructure in place to import, distribute and to store gas and oil. We also need robust gas and electricity networks and electricity generating capacity to ensure consistent supply to consumers and all sectors of the economy*".

"Currently over 90% of Irish energy requirements are imported. Combined with our peripheral location and small market scale, this current reality leaves Ireland vulnerable to supply disruption and imported price volatility. Security of energy supply is a global issue and the European Union's growing reliance on energy imports increases Ireland's overall energy vulnerability".

"The governments overriding policy objective, therefore is to ensure that energy is consistently available at competitive prices with minimal risk of supply disruption."

Amongst the strategic goals set out in the White Paper are

- "*Ensuring that electricity supply consistently meets demand*".
- "*Ensuring the physical security and reliability of gas supplies to Ireland*".
- "*Enhancing the diversity of fuels used for power generation*"
  and
- "*Being prepared for energy supply disruptions*".

The EIS notes that the UK is the source of 90% of Ireland's gas supply. Developments in the UK, including pipelines from Norway and the Netherlands and LNG terminals at Millford Haven have increased the security of UK gas supplies. However, the White Paper (page 23) states *" while the prognosis for gas supplies is relatively secure as a result, it is prudent for Ireland to develop a longer term strategy to reduce over-reliance on gas imports from the UK. This strategy will also address mechanisms to achieve greater benefits from trading with the competitive UK market*". The White Paper advocates continued active encouragement of the private sector to invest in gas storage facilities and LNG and reviewing the potential need for government intervention in the event of market failure in light of the study's findings and also putting in place an all-island strategy by 2008 for gas storage and LNG facilities in the light of the outcome of the all-island study. By providing an LNG regasification terminal, the EIS claims that the project would support the government's objectives, as set out in the White Paper.

As noted under "Third Party Observations – Other Matters", a number of objectors questioned the need for the project in their submissions to the Board. The applicants responded to these submissions in the course of the oral hearing.

In response to the allegation that the applicants would have no obligation to supply the Irish market with low priced gas, it was conceded that this is the case and that the supplying of gas to the Irish market at any particular price is a function of market conditions and specific contracts to be negotiated with the applicant's customers. The applicants are confident that they would be able to secure a firm supply for the proposed project. The premium price paid for gas on the Irish

market, by comparison with the remainder of Europe would make it attractive to suppliers, but the fact that gas would be supplied directly to the terminal would mean that this premium should be reduced.

In relation to the possibility that the applicants would divert gas arising from their LNG to other markets in the UK and Europe, again, it is conceded that this could happen, but that it is unlikely, except in very rare circumstances, as it would make little commercial sense. In order to sell gas into the UK market, the applicants would have to pay Bord Gais rates for transporting gas through Ireland and then pay inter- connector rates to reach the UK grid. The applicants would thus be unlikely to be able to compete with UK LNG terminals supplying directly into its grid. To supply to mainland Europe, the applicants would not alone have to pay the Irish grid and Irish Sea inter connector rates, but also the UK grid and cross channel inter-connector rates making them even more uncompetitive. Additionally, at least as far as the UK- Ireland inter-connector is concerned, the gas flow in this inter-connector would first need to be reversed, a highly unlikely circumstance (Oral Hearing Transcript, Day 2, pages 20-22 and 57).

In relation to the concept of re-exporting LNG from Shannon to other markets via

tanker, the applicants held that this is highly unlikely as it would be an expensive

proposition to unload an LNG tanker into the LNG terminal and then re-load back

onto another tanker, which would then unload into yet another LNG terminal in

another market (Oral Hearing Transcript, Day 2 page 23).

Responding to the concept that an LNG terminal in Ireland should be developed by a state owned company, it was noted, on behalf of the applicants, that Bord Gais commented on the government's Green Paper "Towards a Sustainable Energy Future for Ireland" 2006, as follows:-

"We recognise that the development of an efficient scale LNG facility will be challenging during the life of the Corrib Field, if viewed in an Ireland only context. Due to the capital intensive nature of LNG, its potential role as a new Irish market, only, supply source would be in the longer term."

It was submitted that this suggested little interest or enthusiasm on the part of Bord Gais and that a state company would be unlikely to be any more successful in securing LNG on competitive terms for the Irish market, unless it paid a premium over all prospective other buyers and then passed on such a premium to Irish consumers.

The suggestion that planning permission should be delayed, until such time as the government completes an all-island strategy for gas storage and LNG, was misplaced as this strategy is to address the issue of gas and LNG storage for strategic and reliability purposes and not the issue of gas supply, which is the prime purpose of the present proposal. Nevertheless, with the later of the four tanks ultimately proposed, the applicants could be in a position to hold an element of strategic reserve.

With regard to the claim that the proposed development is not needed as Ireland already has access to other gas supplies, it was noted, on behalf of the applicants, that while the UK market may well be supplied on an average basis, the forecasts are less assuring when it comes to meeting peak day demand. Peak day supply shortfalls are forecast for the winter of 2015/2016, unless additional investment is made in infrastructure to serve the UK, including additional LNG import capacity. In order to reach Ireland, gas generated from LNG landed on mainland Europe would face the additional costs of passing through the continental and UK grids and two inter- connectors. In addition, it is unlikely that there would be the capacity to undertake this transfer, particularly in peak demand periods. The applicants expect that a *"use it or lose it"* clause would be applied to them as is proposed for the Isle of Grain terminal near London, but even if this did not happen, the applicants would have no commercial motivation to keep capacity at its terminal off the market, as it would then have no source of revenue without LNG flowing through the terminal. (Oral Hearing Transcript, Day 2, page 28).

The suggestion that the proposed development is unnecessary because the UK faces a supply glut is refuted. The report quoted by the third party, *"LNG: UK Gas Sellers Face Looming Supply Glut"* (attachment 8 of the objection from the Kilcolgan Residents' Association), in fact, refers to an excess of import infrastructure up to 2010. Shannon LNG would not begin operations until 2012. Furthermore, a surplus of import infrastructure does not guarantee a surplus supply. The availability of infrastructure and supply in the UK does not equate to more gas for Ireland, as forecasts show that Ireland's peak day requirements would exceed the capacity of existing infrastructure within a few years (Oral Hearing Transcript, Day 2, Page 29).

The suggestion that the project should be refused permission on the basis of the refusal of permission to the applicants, in the United States, arising from an alleged disregard for safety, is rejected. The development in question, the Weaver's Cove project was found to be safe, secure and environmentally acceptable by the Federal Energy Regulatory Commission (FERC) and approved, accordingly. However, the proposal was rejected by the Coast Guard in relation to shipping access. Hess is currently striving to overcome the objections of the Coast Guard and it is expected that the project would proceed to full approval within the next year or so (Oral Hearing Transcript, Day 2, Pages 30 and 31).

During the Oral Hearing, the applicants' experience and qualifications in relation to LNG storage and regasification was queried. The applicants confirmed that at present they have no LNG import terminal in operation. In that sense, they are similar to many other major companies such as BP, ExxonMobil, Total and British Gas. Similarly, most companies with planned LNG terminals have no actual operating experience. The applicants then went on to stress the level of experience of their individual staff in the LNG and petroleum industry (Oral Hearing Transcript, Day 2, Pages 42 and 43).

The Environmental Impact Statement (Volume 2, Section 4.5.4) quotes from the South West Regional Planning Authority – Regional Planning Guidelines, 2004 which state that "an extension of the (gas) network to the Kerry Hub, if economically feasible, would help provide an alternative energy supply and act as a stimulus to economic development and its extension is supported by the Regional Planning Guidelines. Planning authorities should take into account the location of

strategic gas infrastructure when planning policy is being considered and similarly, when considering detailed layouts of developments at the planning application stage, to, as far as possible, avoid the need for relocation of gas transmission infrastructure" (RPG, Page 68). It is claimed that the LNG terminal would be a key element of gas infrastructure development and would assist in the economic development of North Kerry.

Having regard to the foregoing, and in particular, having regard to the provisions of the National Development Plan, 2007-2013 and the Government White Paper, "Delivering a Sustainable Energy Future for Ireland", I consider that notwithstanding the objections raised, that an LNG regasification terminal of the type proposed can reasonably be held to be of strategic economic importance to the State. I am not convinced that either the National Spatial Strategy or the South West Regional Planning Authority – Regional Planning Guidelines, 2004 are of particular relevance to the proposed development. Both of these documents refer to the extension of the national gas grid towards the Tralee/Killarney Hub. The proposed development, in itself, would do nothing to extend the distribution network (EIS, Volume 3, Figure 2.1). Even the preferred corridor for a gas pipeline connection from the site to the national grid, somewhere in the vicinity of Foynes (EIS, Volume 3, Figure 18.1), **which would be the subject of a separate application for planning permission, would do little to extend the network and might not provide a take-off point towards Tralee/Killarney in preference to somewhere on the existing grid in the vicinity of Mallow. The only likely possibility from the connecting pipeline would seem to be a spur to Tarbert. The proposed development would not seem to be of *"strategic, economic or social importance to the …region in which it would be situate"* nor would it seem to *"contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any Regional Planning Guidelines in force in respect of the area or areas in which it would be situate"* (Planning and Development Act) 2000, Section 37A(a) and (b), as amended by the Planning and Development (Strategic Infrastructure) Act, 2006.**

Effect on the area of more than one planning authority

The proposed development would be clearly seen from the north shore of the Shannon Estuary from the functional areas of County Clare and Kilrush Town Council. This has given rise to a submission from Clare County Council, with Kilrush Town Council indicating that it is represented by the county in this regard. The issue of visual impact is assessed under that sub-heading, later in this report. The adjoining county of Limerick would be affected, albeit indirectly, by the proposed development, insofar as the preferred route for the connecting pipeline to the National Grid would pass through Limerick. The passage of gas tankers up the Shannon Estuary and the safety or control zone, which would be placed around these tankers during this passage, would impinge on ships using the estuary to gain access to ports in Counties Clare and Limerick.

The Board has already advised the applicant that the proposed development, would, if carried out, have a significant effect on the area of more than one planning authority.

Site selection and alternatives, including alternative methods

The Environmental Impact Statement (Volume 2, Section 2.3.2) sets out the site selection criteria and methodology. The proposed development would require the following:-

- *Sheltered water with a minimum depth of 14-15m at mean low water, to minimise the environmental and economic impacts resulting from any requirement for dredging or creating breakwaters or other artificial infrastructure.*

- *Safe access to and from the sea.*

- *A channel wide enough to accommodate the largest LNG ship contemplated and a nearby turning area of suitable dimensions to turn the LNG ship, prior to or on completion of discharge.*

- *A suitable location for the construction of a jetty and unloading facilities adjacent to the onshore portion of the site.*

- *Proximity to the gas transmission grid at a point with sufficient pipeline size to ensure takeaway of the planned gas volumes.*

- *Preferably, availability of existing marine support infrastructure such as tugs, pilots, vessel tracking system and shipping agents.*

The above mentioned criteria led to the elimination of Drogheda, Dundalk, Malahide Inlet, Dublin Port, Arklow Port, Rosslare Port, Waterford Estuary and Youghal Estuary on the basis that they had insufficient water depth or, where such depth existed, they did not have sufficient space for shore-side facilities. Galway Bay, Clew Bay, Broadhaven Bay, Killala Bay, Sheephaven and Lough Swilly were eliminated as they are exposed to adverse weather and swell at various times of the year. This left just four areas having both water depth and shelter, namely the Shannon Estuary, Killary Harbour, Bantry Bay (Bearhaven Sound) and Cork Harbour.

Killary Harbour was rejected on the basis of the narrowness of its entrance (less than 200 metres), the restricted manoeuvring room within the harbour, the presence of many unmarked hazards, a large aquaculture presence, significant distance to the gas and electricity grids and limited on-shore and marine infrastructure. The on-shore topography, much of which is mountainous close to the waters edge, was also considered to be unsuitable.

Bantry Bay (Bearhaven Sound) again suffered from a large aquaculture presence, a tight manoeuvring area and a lack of on-shore infrastructure, i.e. significant distances to the gas and high voltage electricity transmission grids.

Cork Harbour is noted to handle crude oil ships with a maximum draft of 12.5 metres and a beam of 45 metres, similar to the LNG ships, though the latter are 30 to 50 metres longer. However, they can only enter the harbour at high tides. There are just two modern tugs available with a combined bollard pull of approximately 90 tonnes. One or two further tugs would be required to handle a large LNG ship.

Drawbacks to Cork Harbour are noted to be restricted approaches, shallow depths in the entrance and turning areas, close proximity to other large passing marine traffic at the position of the most likely LNG berth, the unsuitability of a potential site near the Whitegate Refinery due to its high elevation and the inadequacy of the gas grid near Cork with pipelines of just 457 millimetres and 610 millimetres diameter.

The elimination of Killary Harbour, Bantry Bay and Cork Harbour left just the Shannon Estuary from those locations with both deep water and shelter. Apart from the application site, seven other sites were identified as possibilities along the estuary. On the northern shore were Moneypoint, Labasheeda and Shannakea and on the southern shore were Aughinish Island, Mount Trenchard, Foynes Island and Tarbert (see EIS, Volume 3, Figure 2.6). A table (EIS, Volume 2, Section 2.3.4.8) summaries the position in relation to the Shannon Estuary sites. Of the seven other possibilities, only Aughinish Island has poor water depth. Both Foynes Island and Mount Trenchard have poor topography. All the alternative sites are noted to be zoned for agriculture and the availability of land is stated to be "unknown – private".

The EIS (Volume 2, Section 2.3.4.1) notes the attributes of the chosen application site. It is close to deep water and relatively low-lying. The nearest towns are Ballylongford at 3.5 kilometres to the west and Tarbert at about 4.5 kilometres to the east. The site is owned by Shannon Development. It is identified in the Kerry County Development Plan, 2003-2009 as being suitable for the development of premier deep water port facilities, major industrial development and employment creation. It is zoned for industrial development and had previously been advertised as suitable for the development of an LNG terminal. Deep water access is available at the eastern end of the site. It is just 5 kilometres to the 220 kV and 110 kV electrical substations at Tarbert Power Station. The Bord Gais Eireann 762 millimetre gas transmission pipeline crosses the Shannon at a distance of about 25 kilometres to the east. There is sufficient area available within the site boundaries to permit the development of an LNG terminal, while preserving areas of environmental and archaeological importance. No aquaculture would be adversely affected. No existing users of the site would be disturbed, other than some local farmers who have short-term grazing leases, which would need to be terminated.

During the course of the Oral Hearing, the applicants responded to a written submission from one of the objectors that other terminals are located in developed port areas. It was conceded that this was true of some LNG terminals such as those at Zeebrugge and Barcelona, but that they had also been developed in semi-rural estuaries such as the Isle of Grain and Milford Haven. The South Hook LNG terminal is partially within the Pembrokeshire National Park and the Milford Haven waterway is part of the Pembrokeshire Marine SAC, within which both the South Hook and Dragon LNG jetties are located. Other examples of terminals in undeveloped rural areas are Cove Point, Elba Island and Costa Azul. It was pointed out that, as already noted, developed ports in Ireland were considered (Oral Hearing Transcript, Day 2, Page 135).

Different offshore siting possibilities are considered (EIS, Volume 2, Section 2.4). These fall into two broad categories, namely, fixed offshore terminals, including storage and regasification, either resting on the seabed (i.e. gravity based or GBS) or floating storage and regasification units or FSRU. These are served by conventional LNG tankers. The second category consists of offshore terminals where the storage is solely on board the LNG tanker. The vaporisation equipment is either on the tanker, itself or on a floating unit attached to the tanker. A variation consists of a dockside installation allowing what is essentially a ship based terminal to hook up to an on-shore pipeline. In general offshore terminals are extremely expensive, have been found to offer no real advantages, in terms of lessening local environmental opposition, and are inflexible when it comes to future expansion.

There are very few existing LNG tankers with regasification equipment on board.

In the gravity based structure terminals, the LNG storage tanks are contained in a tall concrete structure or structures, which are towed to the site and then ballasted directly onto the sea floor with the top extending above the water. Vaporisation equipment is usually installed above the water using the concrete structures as a platform. As the terminals are generally located further from the shore, they are exposed to more extreme weather conditions, which can create problems when mooring LNG tankers. These terminals require a water depth between 15 and 30 metres, relatively benign seabed slopes and soft seabed soils. In Ireland, such conditions are only likely to be found within estuaries or on the east coast. This would negate one of the claimed advantages insofar as the facility would not be located remote from the land and population. In order to be economic, GBS terminals require a minimum throughput of 28.3 million cubic metres per day, well in excess of the current Irish consumption of 17 million cubic metres per day. Severe weather tends to coincide with periods of high winter gas demand so that there would be a need to install extra storage capacity to ensure a continual gas supply. No GBS terminals are in operation and just one is under construction. This methodology is thus untried.

Floating storage and regasification terminals have an optimal water depth of between 30 and 50 metres. Like the GBS terminals, they have a limited operating weather range. A proposed FSRU between Long Island (New York) and Connecticut would allow LNG tankers to come alongside only in wave heights of less than 2 metres and to unload in wave heights not exceeding 3 metres. Again this implies a location in relatively sheltered waters. There is no FSRU terminal in existence and none under construction. On submerged offshore buoy technology (EIS, Volume 2, Section 2.4.4) it is noted that this requires the mooring of specialised LNG vessels with onboard vaporisation equipment directly onto submerged buoys. Just one such system is operational, worldwide. The only storage available in this system is that provided by the cargo tanks of the LNG ship while attached to the buoy. Two such specialised LNG ships would be required to be connected to two such buoys in order to ensure a continuity of supply. Given the limited operating history of the single existing facility and the need to use special LNG ships, it is claimed that this design creates technical and reliability concerns. There has been a lack of activity at this existing terminal over the past two and half years and this is claimed to raise questions as to its commercial viability and acceptance by the LNG suppliers.

A variation of the submerged buoy technology is location at quayside. This uses the same specialist LNG ships which serve the submerged buoy technology. The regasification equipment is on board the ship. In this case, however, the ship ties up to the dockside and pumps gas into an above ground installation (AGI), which provides pressure control, metering and nitrogen blending. Like the submerged buoy system, the only storage in this system is that on board the ship. It would thus require a very large open dock to accommodate two ships in order to ensure a continuous supply. Again, a problem arises from the very small number of specialist LNG ships available.

On the issue of offshore versus onshore terminals, the applicants responded to the written submissions received by the Board. On the concept of a storage facility offshore combining wave energy, offshore wind and tidal flow, the applicants were not aware of any such proposed project anywhere in the world. In relation to the

use of alternative sources of energy rather than LNG, such as wave or tidal current energy, it was felt that the capture of such energy on a commercial basis still faced huge technical challenges and would also raise environmental issues. The harnessing of tidal current energy is more predictable than wave energy, but environmental issues arise, especially where dams or barrages are proposed across estuaries or where underwater tidal turbine farms are proposed. A study, "Ocean Energy in Ireland" prepared for the Department of Communications, Marine and Natural Recourses in October 2005 (Page 9) noted that for the harnessing of ocean energy, a handful of prototype developments have been operational for many years, but that there were many more examples of troubled prototype testing or device concepts that have languished in the laboratory for years. The study felt that there was a need for a successful commercial device to reach the market and provide access to data verifying that ocean energy is economically viable. Another study, "Economic Viability of a Simple Tidal Stream Energy Capture Device" carried out for the UK Department of Trade and Industry concluded that the tidal turbine energy of 2006 was comparable to the wind industry of the early 1970's with a large number of possible permutations of various design options, i.e. diversity of approach and a shortage of hard evidence as to which prototypes would be likely to have a commercial future (Oral Hearing Transcript Day 2, Pages 135-137).

The concept of delivering LNG, converting it to gas onboard the carrying tanker and pumping it into an offshore gas cavern, such as the now nearly depleted Kinsale Gasfield, would suffer from the same technical and reliability concerns and lack of storage capacity presently encountered with the existing submerged offshore buoy offloading facility in the Gulf of Mexico. The Joint Committee on Marine and Natural Resources recommended, only, *"the full potential of this method of storage needs to be explored, quantified and costed."* This is claimed to be a call for research, rather than a recommendation for adoption (Oral Hearing Transcript, Day 2, Page 138). If the onboard-regasified LNG was offloaded at the existing Kinsale gas platform it would require safe mooring of the LNG tankers at or near the platforms in the exposed Celtic Sea for long periods of time. There would be a problem guaranteeing the delivery of LNG during stormy conditions (Oral Hearing Transcript, Day 2, Page 111).

Responding to a question in relation to a video presentation (see disk from Kilcolgan Residents' Association) on an alleged "planning application" for a floating storage and regasification terminal 20 miles off New York, by Blue Ocean Energy, it was stated that this was purely a publicity release of concept by a subsidiary of Exxon Mobil. No application had been submitted to any regulatory authority (Oral Hearing Transcript, Day 2, Page 184).

In terms of alternatives to the layout of the site, it is pointed out (EIS Volume 2, Section 2.5.2) that there is a number of environmentally designated areas effecting the north-eastern part of the overall Shannon Development landbank. This includes the lower Shannon candidate Special Area of Conservation and the Ballylongford proposed Natural Heritage Area. Large parts of the Shannon Estuary are also designated as the Shannon-Fergus Estuary Special Protection Area (SPA). The

location of the proposed LNG facility was chosen in order to minimise potential disturbance of these areas, minimise visual impacts to the neighbours to the south and to provide for the safest, most efficient and economical plant design and layout. Only the two jetties and surface water out flow pipe would be located within a designated area, namely the Shannon Estuary.

The LNG jetty location was chosen as it involves the shortest run to deep water. A T-shaped jetty was chosen, rather than a finger type, as the latter would have involved a difficult docking manoeuvre with the ship at right angles to strong tidal currents, entailing a very robust jetty design (EIS Volume 2, Section 2.5.2.2).

The tank farm is located as close as possible to the proposed jetty and in a position where it would be screened by the highest land to the south of the application site. To have located further west on the site would have involved much greater pipe runs and visual impact. A low construction platform, 10 metres OD Malin, and low profile LNG tanks have been adopted to minimise visual impact (EIS Volume 2, Section 2.5.2.4).

In terms of tank farm design, the tanks have been located along the shoreline in accordance with EU LNG tank design codes, which require a minimum separation distance between full containment tanks of one half of the tank diameter. They have been located as close as practical to each other and to the shoreline in order to minimise visual impact. The 10-metre platform elevation is the lowest safe elevation which would be sufficiently high above predicted high hides, wind generated waves and potential storm surge, plus an allowance for rising sea levels from global warming during the lifespan of the project. The 96 metre diameter low profile design is the largest currently tried and tested and gives a reduction of 9.5 metres in height to the top of the tank roof dome (EIS Volume 2, Section 2.5.2.5).

LNG tanks have been built in ground, i.e. in a pit, partially buried or completely buried. In such instances, the soil surrounding the tank must be water free and impervious or an impervious cut off wall or curtain wall must be installed around the tank to exclude water. This might require deep wells to remove water from the surrounding soil. No LNG tanks have been constructed in hard rock, with some fracturing, as occurs on the application site. The excavation would require significant blasting and large volumes of ground water would need to be handled during construction and operation, particularly so close to the shoreline where the base of the buried tanks would be well below sea level. Excavation would be required in the initial phase for all four tanks, even though it may arise that not all four tanks would be built. Buried or partially buried tanks require built-for-life heating systems to prevent the surrounding soil from freezing. They cannot be readily inspected, maintained or repaired. Locating the tank within a pit obviates the need for heating, but requires an even greater level of excavation. Above ground tank design is tried and tested. There is a reduced construction time, lessening the temporary environmental impacts during the construction phase. Above ground tanks can be decommissioned and demolished in a conventional manner. For these reasons the above ground tank design was selected (EIS Volume

2, Section 2.5.2.6).

Various different options for vaporiser design were considered. The types of vaporiser commonly in use are the Seawater Open Rack Vaporiser (ORV) the Submerged Combustion Vaporiser (SCV) and the Shell and Tube Vaporiser (STV). Combinations of these types may also be used.

The ORV system extracts heat from seawater and this is used to vaporise the LNG. It requires a minimum temperature of 8 degrees centigrade throughout the year, whereas the Shannon Estuary can be as cold as 6 degrees centigrade. The piping of hot water from Moneypoint Power Station, three kilometres across the Shannon Estuary, was rejected, as it was felt it would have considerable environmental impact on the estuary, as well as being difficult and expensive to install and operate. The water would need to be pumped, requiring a considerable electrical power input. As the power station and the LNG terminal would have to be able to operate independently, some form of backup heating would still be required. The ORV option was thus discounted as the only means of vaporisation (EIS Volume 2, Section 2.5.3.2).

In the Submerged Combustion Vaporiser (SCV), LNG is vaporised inside stainless steel tubes immersed in a heated water bath. A portion of the vaporised gas is combusted in a burner system and the flue gasses are bubbled through the water bath, creating the heat necessary to vaporise the LNG. The use of the natural gas as a fuel results in a higher operating cost than ORV designs. A variation on the SCV is to introduce hot water into the bath from another source and to use the combustion only when the temperature drops. Again, the possibility of using hot water from Moneypoint was considered, but in this instance, not alone were there the above mentioned drawbacks, but because the water bath must be fresh water, the warm seawater would require to be heat-exchanged with the fresh water, thereby complicating the design and operation. The use of the SCV can give rise to a steam plume under certain weather conditions. The SCV option, on its own, or in combination with hot water from Moneypoint, was rejected for the same reason as Moneypoint hot water was unacceptable for the ORV and because of the greenhouse gasses which would be produced by the combustion process (EIS Volume 2, Section 2.5.3.3).

The possibility of using a combination of ORVs and SCVs, with the former in use for the summer months and the latter in the winter months, was considered. However, this would have involved costly duplication and was discounted (EIS Volume 2, Section 2.5.3.4).

The Shell and Tube Vaporiser (STV) normally uses one of two systems as a heat source. Firstly, seawater can be used, similar to the ORV design. Additionally, an intermediate fluid can be used to exchange heat between the seawater and the LNG. The use of an intermediate fluid allows lower seawater temperatures to be used to extract useful heat. Heat for the exchanges may also be provided by hot water supplied from industrial gas fired heaters. Supplemental heat from such heaters or other sources can easily be accommodated in the seawater exchanger design to provide a combined solution in order to minimise emissions of greenhouse gasses. A system was chosen to extract as much useful heat from seawater throughout the year and to minimise the operation of gas fired heaters. The system allows the use of seawater, alone, as a heat source, with the use of supplementary heat from natural gas heaters, only when estuary water temperatures are too low. The design allows

the applicants to capture the waste heat from various internal heat generating sources, thereby improving overall plant thermal efficiency (EIS Volume 2, Section 2.5.3.5).

Three other vaporiser options were considered.

The fourth option was the installation of a small electric power plant with a single cycle gas turbine generator. Exhaust heat from the gas turbine would provide heat to the SCV water bath or the glycol/water loop. These units have a lower thermal efficiency than SCVs alone with a higher CO_2 and NOx output. With the glycol/water loop, supplemental heating would only be required for a few months of the year, meaning that the gas turbine generator would be a significant additional investment for only a limited extra electricity supply.

The fifth option was to circulate monoethylene glycol through a heat exchanger located on the seabed. A very large heat exchange surface area would be required and dispersion and mixing of the cold seawater in contact with the heat exchanger would be by natural convection, only, so that there would be a large zone of low temperature seawater around the unit. It would also be subject to fouling and cleaning would be extremely difficult, if not impossible. This approach was thus not pursued any further.

The sixth option was to extract heat from the atmosphere. This method is effective in hotter climates, but would not work at the application site (EIS Volume 2, Section 2.5.3.6).

On water supply alternatives, the EIS points out that water is required for a number of specified purposes, the greatest requirement would be for the hydro-testing of the LNG storage tanks. The hydro-testing of each tank would require 110,000 cubic metres of water over a period of about 1 week. The existing watermain approaching the site from Ballylongford is just 50 millimetres in diameter and is part of the local Ballylongford group water scheme. It is of insufficient capacity to meet the hydro-testing requirement. An alternative would be to fill the tank with seawater, but this would require large volumes of fresh water after the hydro-test to remove residual salt contamination and this would require personnel to work from baskets over the seawater within the tank as it was being drained off. There would be resultant safety implications. In addition, the 9% nickel steel of the inner tank would need to be primed with zinc paint prior to filling with seawater and then this paint removed after the hydro-test, again with safety implications. It would be uneconomic to desalinate the seawater first. Shipping in large volumes of fresh water by sea was

rejected for logistical reasons and cost. There would be an insufficient supply of water from boreholes on site. The formation of a pond on the existing stream was thus chosen as the only realistic and practical option.

During the Oral Hearing, following the submissions, on behalf of the applicants, in relation to alternatives, questions were raised about the possibility of using the depleted Kinsale Head Gasfield for storage of regasified LNG. It was stated, on behalf of the applicants, that the operators of the Kinsale Head Gasfield, Marathon Petroleum, offer commercial storage at the field (Oral Hearing Transcript, Day 2, Page 175). This gas might have come from elsewhere within the Kinsale Head Gasfield or it could be derived from the gas grid. It was suggested that this storage could take place during the summer months and then be allowed back in smaller volumes into the marketplace in the winter. It appears, however, that the real problem relates to unloading and regasifying the LNG either at the gas field platform or adjacent to the gas field. Weather conditions would simply not allow such offloading on a regular basis, particularly if regasification was to take place on board the tanker or directly beside the tanker, which would require it to be tied up for several days.

The possibility of using salt caverns, such as those found in Larne in County Antrim, was also raised by one of the objectors. The applicants agreed that this was technically possible and was taking place elsewhere, but they were not aware of any salt caverns adjacent to a location, which would be suitable for the docking of an LNG tanker.

During the Oral Hearing, the applicants responded to written objections that held that the selected vaporisation scheme might not be the most appropriate, environmentally, and that the selection may have been driven purely by economic considerations. This submission was denied. The primary criterion for evaluation was a desire to have as low an overall environmental impact as practical and not to choose one set of impacts at the expense of all others. The use of seawater as a warming medium minimises greenhouse gas emissions, but the use of seawater was only selected after extensive impact studies had been completed and the impacts judged to be insignificant. Only after the preferred technical solution with minimal environmental impact had been selected did the applicants seek to cost-optimise the design. The chosen seawater system exceeds the cost of a solely gas fired vaporisation system (Oral Hearing Transcript, Day 3, Page 223).

Overall, I consider that the initial site selection process within Ireland has been reasonably thorough, although it is noticeable that despite references throughout the Environmental Impact Statement to supplying an all-Ireland market, no sites appear to have been considered in Northern Ireland. Carlingford Lough, Belfast Lough, Larne and Lough Foyle might have warranted consideration. Having refined their research down to the Shannon Estuary, it is noticeable from the summary table in the Environmental Impact Statement (Volume 2, Page 2-13), that unlike the application site, the zoning of all the remaining Shannon sites is agriculture and the availability of land is marked "unknown-private". It appears that undue weight may have been given to the zoning objective and little real effort made to investigate the land

ownership and availability in rejecting the other sites. Overall, it is difficult to avoid the suspicion, as in the case of many other site selection processes that the entire process has been retrospective, rather than having been carried out from first principles. Having said that, the site does appear to be highly suitable to the applicant's purposes. Having chosen the site, it appears that the layout adopted is that which best takes advantage of the topography of the site and minimises the impact of the proposed development on adjoining environmentally sensitive areas. The adoption of above ground storage tanks appears to be the best technical solution in terms of tried and tested technology. This is considered further under "Visual Impact". The choice of a shell and tube vaporiser system, augmented by natural gas heaters when the estuary water is too cold, again appears to be the best solution at this location. This is considered further under "Ecology". The formation of a pond on the stream passing through the site appears to be the only practical solution to providing 110,000 cubic metres of water for tank testing purposes in a short period of time.

The landbank and the zoning objective

The application site forms part of an area known as the Shannon Landbank. This is an area of some 600 acres (243 hectares) along the southern coast of the Shannon estuary to the northeast of Ballylongford in the townlands of Reenturk, Kilcolgan Lower and Ralappane. This holding was acquired over a period commencing in 1959. During the course of the Oral Hearing, it was explained that Shannon development had retained its lands at the Kerry Deepwater Zone (KDZ) for suitable large scale maritime industry related projects which could use the key attribute of the lands, namely, their close proximity to deep navigable sheltered waters in the Shannon estuary. Over the years, there have been several project inquiries, but none came to fruition. In 2004, Shannon Development advertised for expressions of interest and the Shannon LNG project emerged from that process (Oral Hearing Transcript, Day 1, pages 75 and 76).

Under the Kerry County Development Plan, 2003-2009, the northeastern portion of this landbank was originally zoned "Rural General". The southwestern portion of the landbank was originally zoned "Secondary Special Amenity". In 2007, Variation 7 of the Development Plan changed the zoning affecting 188.8 hectares of the landbank. 105 hectares, i.e. the application site plus the environmentally designated areas to the south of Knockfinglas Point enclosed by the application site (EIS, Volume 3, Figure 10.2) was rezoned from "Rural General" to "Industrial". Eighty three hectares immediately to the southwest of the application site was rezoned from "Secondary Special Amenity" to "Industrial". The purpose of the variation was "*to facilitate consideration of suitable development on these lands in accordance with the provisions of section 5.2.9 of the Kerry County Development Plan 2003-2009, which states: 'lands have been identified at Ballylongford/Tarbert as suitable for development as a premier deep water port and for major industrial development and employment creation'*".

Objective ECO 5-5 of the Kerry County Development Plan 2003-2009 states, "*it is an objective of Kerry County Council to identify lands in key strategic locations that are particularly suitable for development that may be required by specific sectors. Land in such locations will form part of a strategic reserve that would be protected from inappropriate development that will prejudice its long term development for these uses*".

While it seems that the procedure undertaken by the County Council in making this variation is the subject of a complaint to Europe, the position, at present, is that the industrial zoning objective stands. In my view, in a rural area at least a kilometre from the nearest settlement, namely, Ballylongford, this zoning is only reasonable in the context of its proximity to sheltered deep water. Although the proposed development appears to be compatible with the industrial zoning objective, the planning authority was questioned as to how it fitted with its identification of the landbank as suitable for a premier deepwater port facility and for major industrial development and employment creation. It was pointed out that it appeared that ultimately just 50 people would be employed on a site area of 104 hectares. Responding to this question, the planning authority noted that the landbank had been in existence for almost 50 years with nobody working on it. It saw the proposed development as being a catalyst for future development. It considered that employment of 50 people in the context of the length of time that the site had been vacant is significant and that the benefits of the project, overall, would act as a major catalyst for employment in the future. It would act as an attracter of other potential investors and employers on the adjoining industrially zoned land. The development would act as a confidence booster (Oral Hearing Transcript, Day 2, Pages 210 – 211).

In relation to the possibility that the proposed development would create an "exclusion zone" which would preclude or prejudice development on the remainder of the land bank, in my view, such an "exclusion zone" could arise in several different ways: -

- The safety zones of the facility could extend beyond the boundaries of the application site in a manner that would prohibit or restrict development on all or part of the adjoining site.

- The safety zone surrounding a docked LNG tanker might prevent other ships from docking on the adjoining landbank site.

- The proposed development would prevent the adjoining site from gaining reasonable access to deep water.

- The applicants themselves could impose a veto on any Seveso 2 type development on the remainder of the landbank having safety zones, which would intrude, into their site and, in particular, which might affect the possible siting of a future power station within their site.

It emerged during the course of the Oral Hearing (submission of Dr Andrew Franks on Quantitative Risk Assessment, Figure 2.1, Page 12) that the risk zones associated with the proposed development would only extend beyond the application site boundary in an easterly direction onto agricultural lands zoned "Rural General" and out into the estuary. The remainder of the landbank would be completely unaffected.

In relation to the impact of LNG tankers berthed at the jetty, it emerged at the Oral Hearing, during questioning of the Shannon Foynes Harbourmaster, that a control zone would be placed around an LNG tanker, when berthed. A marine quantitative risk assessment is being carried out in relation to the LNG shipping traffic. This is

scheduled to be completed in mid-March 2008. Questioned as to what was likely to be the extent of the control zone around a berthed tanker, the harbourmaster stated that this would be one of the recommendations of the quantitative risk assessment. However, given the width of the estuary, a 500 metre control zone would not be problematic. The control zone would extend out into the estuary and for and aft of the ship. Even if a 500-metre control zone was to apply in a westerly direction from a berthed tanker, this would fall far short of affecting the berthing of ships at the remainder of the landbank and, indeed, would not affect the berthing of ships at the possible materials jetty within the application site. A 500-metre control zone would affect the berthing of ships for a considerable distance along the coastline in an easterly direction, but these lands do not form part of the landbank and are zoned "Rural General".

The position of the LNG jetty has been deliberately chosen to minimise the length of jetty necessary to reach deep water. As far as the land bank is concerned, the LNG jetty would thus effectively monopolise ready access to deep water. The coastline of the remainder of the land bank extends in a southwesterly direction into Ballylongford Bay, where the water is much shallower. I estimate that a jetty from the nearest point on the remainder of the landbank would have to extend out over 800 metres in order to reach deep water (10 metres), based on the Admiralty Chart shown on Figure 2.7 of Volume 3 of the Environmental Impact Statement. However, such a long jetty would not be unprecedented in the Shannon Estuary, as the jetty at Aughinish Island is approximately a kilometre long.

The applicants have an option to purchase the application site from Shannon Development. The terms of this option are unknown. However, it would seem a possibility that the applicants might seek to control, either as part of the terms of the option or otherwise, the use and development of the remainder of the landbank in order to ensure that no Seveso 2 type development took place, which would have risk zones extending into the application site and in particular which might prejudice the building of a power station at either of the locations shown as future possibilities within the application site. However, the applicants denied that they were setting any limitations on the right of Shannon Development to develop the adjacent property in any way they saw fit. It was pointed out that the potential impact of any development on the adjoining site would be a function of its own QRA and that would be something the applicants would have to take up at that time (Oral Hearing Transcript, Day 8, page 112).

Overall, in terms of "exclusion zones" arising from the proposed development, it appears that there would be no effect, whatsoever, on the adjoining industrially zoned lands within the landbank. The biggest impact the proposed development would appear to have on these adjoining lands is that these adjoining lands would then have less ready access to deep water. The proposed development would also appear to preclude the realisation of one of the options contained in section 5.2.9 of the Kerry County Development Plan, 2003-2009, namely the development of a premier deepwater port on the landbank. One of the objectors, Des Branigan, strongly favoured the creation of such a deepwater port. There was some argument that the proposed development, by virtue of its LNG jetty, constituted a deepwater port, but I do not accept that this would be a general understanding of the term.

The planning authority claimed that the assumption, that any further development subsequent to the LNG proposal on the remainder of the land bank would also

require deep-water facilities and marine facilities, was not valid. Other industrial development and employment creating activities could take place on the remainder of the landbank, which would not be dependant on deepwater port facilities. **As noted previously, I consider that the industrial zoning of the Shannon landbank in this rural area, is only appropriate if it is dependant, directly, or indirectly, on access to deep water in the Shannon estuary. I consider that the development of the remainder of the land bank for industrial purposes would be acceptable, only if it had its own deepwater access or, alternatively, was directly dependant on a development on the application site. In this regard, the suggestion from the planning authority that there might be a synergy between the proposed development and the development on the adjoining site (Oral Hearing Transcript, Day 2, Page 210), such as the development of a pharmaceutical plant, which could benefit from the diversion of the cold water flow arising from the regasification process, is relevant. Another example of such synergy would be an industry, which required a major gas supply. It appears, in terms of deepwater access, that the proposed development could disadvantage the remainder of the landbank. However, on the other hand, it could be beneficial to a suitable industrial development on the remainder of the land bank.**

Overall, I consider that the attitude adopted by the planning authority in relation to this proposed use of part of the Shannon landbank is appropriate. The LNG terminal is a reasonable use having regard to its access to sheltered deepwater.

Safety

LNG is non-flammable and non-explosive. It is normally contained at atmospheric pressure. In order to burn, LNG must first be gasified. It must them mix with air or other source of oxygen in the correct ratio. Finally it must encounter a source of ignition. When mixed with air, natural gas will only burn, if it constitutes less than 15% of the air/gas mixture (the Upper Flame Limit - UFL) and more than 5% of the gas/air mixture (the Lower Flame Limit – LFL). Unlike many gasses, under most circumstances, natural gas, in its gaseous form, is not explosive either. To explode, it must first be severely confined. However, the vaporisation of a pool spillage can give rise to rapid phase transitions (RPTs), flameless explosions, which, though relatively small, may well be sufficiently violent to throw up debris in a manner which would create a source of ignition, as is suspected in the case of a test carried out in the Nevada Desert discussed further on page 47.

The issue of safety is, overwhelmingly, the prime concern of those who objected to the proposed development. This was reflected in the fact that of the seven days of Oral Hearing, two days were devoted to the health and safety module and the fact that on other days of the oral hearing, the discussion frequently drifted back to health and safety related matters. Protest posters opposite the application proclaim “Safety before LNG”. Of the 32 appendix documents submitted by the Kilcolgan Residents’ Association, 14 are wholly or partly devoted to the safety issue.

As the proposed development constitutes an establishment within the meaning of the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations, 2006, pursuant to article 215 of the Planning and Development Regulations, 2001, as amended by the Planning and Development Regulations, 2006, the Health and Safety Authority (HSA) was notified of the

application and was requested to supply technical advice on the effects of the proposed development on the risk or consequences of a major accident.

On 9th January 2008, the Health and Safety Authority advised the Board that on the basis of the information supplied by the Board to the Authority and the information obtained directly from the applicants, and, in particular, the quantitative risk assessment, the Authority did not advise against the granting of planning permission in the context of Major Accident Hazards. In submitting this advice, the Authority also included a general note on its approach to the provision of land use planning advice. This stated, inter alia, that the Authority considers only the effects of ***credible*** major ***accident*** scenarios at the establishment and does not deal with routine emissions (my emphasis).

The quantitative risk assessment (QRA) was deliberately omitted from the application. It was not considered appropriate that the QRA, in its entirety, should be lodged with the application or form part of the Environmental Impact Statement. It was a document that was properly for the assessment of the Health and Safety Authority, only. Nevertheless, in the present instance, the QRA was made available to the public a few days after the lodgement of the application with An Bord Pleanála. A summary of the QRA is contained in the Environmental Impact Statement in Volume 4, Appendix 3E.

During the course of the oral hearing, Mr Patrick Conneely, Senior Inspector with the Health and Safety Authority gave a presentation on the role of the Authority. In the case of new establishments, land use planning policy must take account of the need to maintain appropriate distances between the establishments and residential areas, buildings in areas of public use, major transport routes, as far as possible, and recreational areas and areas of particular natural sensitivity. On the approaches to land use planning advice, it was explained that this advice could either be consequence based or risk based. A major accident is defined in the Seveso 2 Regulations as an occurrence such as a major emission, fire or explosion resulting from uncontrolled developments in the course of the operation of the establishment, leading to a serious danger to human health or to the environment, whether immediate or delayed, inside or outside the establishment and involving one or more dangerous substances. In the present instance, the Establishment would consist of the area within the facility boundary, any pipelines within the facility boundary and the jetties associated exclusively with the facility. It was pointed out that the regulations do not cover the occurrence outside an Establishment of the transport of dangerous substances by road, rail, internal waterways, sea or air, intermediate temporary storage, the loading or unloading of dangerous substances at docks, wharves or marshalling yards, and the transport of dangerous substances in pipelines and pumping stations. However, in the present instance, the offloading of LNG from a tanker ship at the jetty would be considered. It was emphasised that the HSA considers only the effects of credible major accident scenarios at an establishment.

The HSA presentation dealt with the issue of tolerable risk. In order to establish a baseline, levels of everyday risk were examined (HSA Submission, Page 5 - Oral Hearing Transcript, Day 4, Page 50). In the UK, fatal motor vehicle accidents and accidents in the home were found to be approximately at the level of one in 10,000 per annum. In Ireland in the construction industry, again, the level of fatalities was approximately one in 10,000. The benchmark levels of acceptable risk from other countries were examined. In the UK, the benchmark for new plant developments is

one in 100,000 per annum of dangerous dose. (Dangerous dose is a lower threshold than a fatality. It implies severe distress to all, a substantial number requiring medical attention, some requiring hospital treatment and some (about 1%) fatalities). In order to allow unrestricted residential development, in terms of safety, the UK Health and Safety Executive specifies a risk of one in 1,000,000 per annum for dangerous dose. In the Netherlands a broadly acceptable public individual risk is specified at one in a million per annum and the maximum tolerable public individual risk for new developments is also set at one in a million per annum. In Australia, the acceptable risk to the public in residential zones from hazardous injuries is set at one in a million per annum.

For existing establishments, the HSA adopts a triple risk zone approach. In the inner zone, the risk level would be greater than one in 100,000. In the middle zone, the risk level would lie between one in 100,000 and one in a million and in the outer zone, the risk level would be between one in a million and 0.3 in a million. For new establishments, it is necessary to demonstrate that they do not present a risk of dangerous dose greater than five in a million to their current neighbours or a risk greater than one in a million to the nearest residential type property. In order to establish this, the Authority seeks from the operators of proposed establishments, a detailed consequence and risk assessment in order to help formulate a response to a request for advice on a planning application. In the normal process, the Authority advises the local planning authority and, in the event of an appeal, it then reviews this advice and advises An Bord Pleanala (HSA Submission, Page 7 - Oral Hearing Transcript, Day 4, Page 54).

The Health and Safety Authority then set out the chronology prior to the provision of advice in relation to the current planning application. Several meetings took place with the applicants and their technical advisers before the lodgement of the application. The Authority then undertook a literature review, particularly that in peer reviewed journals. It reviewed the submitted quantitative risk assessment. There then followed thirteen written queries to the applicants and a further seven written queries following their response. The Authority then advised An Bord Pleanala and, finally, was now attending the oral hearing.

Following its submission at the Oral Hearing, further clarification was sought from the Health and Safety Authority in relation to the extent of its remit. It was confirmed that some of the major accident initiating events referred to in its submission (HSA Submission, Page 4) could relate to external events, which might impinge on the site. The Authority was queried as to whether that included the possibility of a severe accident occurring to an LNG tanker while it was tied up to the jetty. It was confirmed that when a ship is tied up at the jetty, that that would be part of what the Authority would examine. They did not consider terrorist activity, but dealt only with accidents. They would consider whether an event at sea could initiate a major accident on the establishment. If the ship were tied up they would consider what were credible events at the jetty. The scenario of a major rupture of one of the tanks on an LNG tanker, possibly leading to a cascading affect to other tanks on the tanker, with the possibility that the ship might shift its moorings and that the polypropylene lines tying it would melt and that the ship would drift, was presented to the Authority. In response, it was stated that the HSA would consider credible events. It was not considered credible that when the ship is moored, that it would be ruptured and lose half its contents.

During the course of the oral hearing, the Kilcolgan Residents Association called on

an expert witness, Dr. Jerry Havens. Dr. Havens is currently professor of chemical engineering at the University of Arkansas. He has spent his adult life researching the potential consequences of catastrophic releases of hazardous materials, with an emphasis on fire and explosion hazards. He was consultant to the Major Hazards Committee and the Health and Safety Executive in the conduct of the heavy gas trials at Thorney Island in Hampshire in the early 1980's. These were gas dispersion experiments recommended by the UK government as a result of the Flixborough disaster. He investigated and continues to study the Bhopal gas cloud disaster, which occurred in India in 1984. He played a seminal role in the development of two LNG vapour dispersion mathematical models that are currently required in the United States to be used by applicants for approval of LNG terminal sites.

Dr. Havens explained that in the US approval of land based import terminal sites is the responsibility of the Federal Energy Regulatory Commission (FERC), whereas the Coast Guard currently plays the more formative role regarding the safety aspects of the shipping side of the project.

Dr. Havens was of the opinion that, in relation to the land based part of an LNG terminal, our current understanding of the consequences of the release of LNG on land, where it could most effectively be contained, is largely sufficient, needing only *"maintenance"* efforts to ensure *"the propriety of that information to changing industrial practices"*. However, he was anxious to dispel the notion that LNG vapour, being principally methane, is lighter than air and would therefore rise harmlessly into the air and out of danger if LNG were spilled. LNG is a liquid at very low temperature, about –165 degrees centigrade, and the vapour initially formed is at that temperature also. At that low temperature, it is about 50% heavier than air. An LNG vapour cloud would thus spread laterally and remain close to the ground, prolonging both in distance and time the potential hazard to the facility and to the public. The hazard is primarily a fire hazard and not an explosion hazard.

In relation to the shipping side of the operation, Dr. Havens noted that the cargo tanks on LNG tankers, mainly because of weight considerations, are likely to be more vulnerable to failure due to puncture damage, especially if intentional, rather than the more massive land based "full containment" storage tanks. Unlike the land based tanks which are required to have secondary containment features to limit the spreading of spilled LNG, no such measures appear to be practical for spills on water. If a large spill occurred on water it would spread until it completely evaporated, whether burning or not. If ignition did not occur, a vapour cloud would form which could drift significant distances downwind before it became diluted to a concentration where it would be beyond ignition. During that travel, if the cloud were ignited, the result would be a vapour or flash fire, which would severely endanger people or property caught within its confines. If ignition occurred at the point of release, the result would be a pool fire.

Dr. Havens rejected the comparison of the energy content of an LNG ship with fifty or more Hiroshima-yield nuclear weapons. While he felt that the energy content of an LNG ship is that large, the comparison was meaningless unless the time in which the energy could be released (a fraction of a second in the case of a nuclear weapon and much longer in the case of an LNG fire) was considered. However, the potential for catastrophic consequences to result from large releases of LNG, especially onto water, where its spreading and rapid evaporation could not be controlled, should not be dismissed.

Dr. Havens held that if an LNG gas carrier was to be attacked in the proximity of the shoreline, either while docked or in passage in or out of the estuary, and cascading failures of the ships containments were to occur, it could result in a pool fire on water with a magnitude beyond anything that has been experienced and could, in his opinion, have the potential to put people in harm's way to a distance of approximately three miles from the ship. He considered that parties that live in areas where such a threat could affect them deserved to have a rational, science based determination made of the potential for such occurrences, no matter how unlikely they might be considered.

Following his presentation, Dr. Havens was questioned on vapour dispersion modelling. In response, Dr. Havens stated that while under contract to the US coast guard in the 1980's, he developed the DEGADIS (Dense Gas Dispersion) model for LNG spills. This remains one of the models required to be used in the US. He felt that the applicability of this model was particularly effective over flat surfaces such as water. Dr. Havens pointed out that the DEGADIS model is a consequence model, only. It would normally be used in conjunction with some other kind of probability assessment in order to arrive at a measure of risk. The model requires an input of the amount of LNG vapour going into the atmosphere, the rate at which it goes in, the area that it is coming off, the time schedule for it going into the air and the atmospheric conditions applying at the time. The Sandia Report envisaged the possibility of half the contents of one of the tanks of a typical LNG carrier of 125,000 cubic metres, i.e. 12,500 cubic metres spilling. Dr. Havens took the view that in the event of such a spillage, instant ignition was almost inevitable and that a pool fire would result rather than a dispersing vapour cloud. Sandia calculated that the heat radiation from such a fire would amount to five kilowatts per square metre (the threshold level for second degree burns to a person exposed for 30 seconds) at a distance of about one mile.

Dr. Havens showed a video clip (see disk from Kilcolgan Residents' Association) of a test carried out in the 1980's at the Liquified Gaseous Fuels Test Facility in the Nevada desert. This test was one of a series of tests known as the "Falcon" tests to study the effect of building a vapour fence around a liquefied gas spill area. In the tests, LNG was spilled out of a distribution pipe system, "a spider network", onto the water surface of a vertically sided pond. The pond was contained within an area of 44 metres by 88 metres, surrounded by a ten-metre high fabric fence. In the video, the vaporising gas arising from the spilt LNG is seen to mix with air and to overbrim the fenced area, despite this fenced area being sufficient to contain the volume of gas, which would have arisen had it not mixed with air. It then spreads laterally beyond the fence line. Although natural gas is not visible, the extreme low temperatures caused the 5% water vapour content of the hot desert atmosphere to condense, rendering the gas/air cloud visible. The video clip covers the fifth and final test and shows the initiation of a series of Rapid Phase Transitions (RPTs) or flameless explosions randomly within the gas/air cloud. Despite taking every precaution to ensure that there would be no source of ignition, at the end of the test, the cloud catches fire and a fireball (not an explosion) erupts. A popular theory is that the fire was initiated by a piece of debris, possibly a concrete block, thrown up by the RPTs, striking the electro-statically charged fence surrounding the site and causing a spark.

Having clarified with Dr. Havens that the Sandia Report had, infact, considered the possibility of a cascading effect on a tanker, albeit limited to just three tanks, and

that it had concluded that such an effect would prolong a fire, rather than extend its intensity, the applicants put it to Dr. Havens that apart from considering the consequences of an accident, it was also necessary to consider the risk of the accident occurring in the first instance. Dr. Havens responded that the calculation of risk was not part of his role, but he was sceptical of the ability to calculate the probability of a terrorist attack. The applicants suggested that the calculation of this risk was really a matter for the security forces, namely An Garda Siochana or the Department of Defence.

At this point (Oral Hearing Transcript, Day 3, Page 115), the Harbour Master for the Shannon Foynes Harbour Authority pointed out that he was also the Port Security Officer for the estuary. In relation to security, he interacts with the Garda Siochana. If this project were to go ahead, an Incidents Plan would be put in place at the jetty to secure the ship and the jetty interface against unwanted intrusion. If he were advised of a heightened threat level to an incoming ship, that ship would be required to remain outside the area of the harbour authority. It would not be allowed to proceed into the area of the harbour authority until the Gardai, Navy or Army had provided resources to deal with the situation.

Following the oral hearing, on 8th February 2008, the Health and Safety Authority wrote to the Board advising that it had now had the opportunity to examine, in detail, documents submitted to it by the Kilcolgan Residents Association on 10th January 2008. These were reviewed in conjunction with both the oral and written evidence given to the Board during the Health and Safety module of the oral hearing. **After careful consideration of all the relevant material, the Authority found no basis to alter the advice given to An Bord Pleanala, as contained in its letter of 9th January 2008.**

In my view, it is critical that the Health and Safety Authority had regard to a *credible* risk of an *accident* (my emphasis) in considering the impact that an accident onboard an LNG tanker docked at the jetty might have on the establishment. In reaching its decision, the Health and Safety Authority would have had regard, inter alia, to the information contained in Appendix 3C of the Environmental Impact Statement (page 3C-3) which refers to the assessment of the risk of structural damage to LNG ships due to collision or grounding contained in the Society of International Gas Ship and Terminal Operators (SIGTTO) in its Information Paper 14 of August 2000. The EIS points out that once in the Shannon estuary, the proposed LNG ships would be transiting in deep waters, escorted by tugs, under pilotage and proceeding at relatively low speeds. Actual grounding incidents and theoretical calculations together suggest that even from initial speeds of 12 knots, rupture of the cargo containment system is highly unlikely under port approach conditions. Final approach to the jetty would be undertaken at five knots or less. Major collisions could only involve another large vessel travelling in the opposite or in a crossing direction. Shipping activity in the estuary amounts to an average of just three arrivals and departures daily. For another vessel to approach within collision range would imply a failure of the Port Authority and pilots to restrict the simultaneous movement of other shipping when an LNG ship is in transit. (This was effectively confirmed by the Harbour Master for the Shannon Foynes Harbour Authority in speaking on the issue of shipping control zones during the course of the Oral Hearing (Oral Hearing Transcript, Day 4, Pages 140 and 141)).

All LNG tanker ships are double hulled with the cargo tanks, separate again. The SIGTTO information paper gives a table showing critical impact speeds for three different colliding ship displacements. Critical impact speed is the speed at or above which a 90-degree impact would have sufficient energy to penetrate the cargo containment system of an LNG ship. For a 20,000 ton ship, the speed is 7.3 knots, for a 61,000 ton ship, 4.2 knots and for a 93,000 ton ship, 3.2 knots. The EIS claims that it is inconceivable that any such ship in the Shannon estuary would be proceeding on a course at 90 degrees to an LNG ship and at the same time. For shallower angles of impact, critical speeds are much higher than these and when less than 45 degrees, the ships are likely to rebound from each other with limited deformation of the shipside structure.

The only possibility of a rupture of one of the storage tanks on an LNG tanker ship within the Shannon estuary appears to arise from a deliberate action, such as a terrorist attack. It seems inevitable that such an event would have an immediate source of ignition and the result would be a large pool fire. Such a deliberate release of cargo is described as the *"credible worst case scenario"* in the Environmental Impact Statement (Volume 4, Appendix 3C, Page 3C-4). The EIS takes the view that it would require a successful terrorist attack such as a large boat bomb or device of similar explosive energy.

During the course of the oral hearing, the Harbour Master for Shannon Foynes Harbour Authority explained the situation in relation to security. The Harbour Master is also the designated Port Security Officer for the entire estuary. Within the estuary, each individual port, such as Shannon LNG, is required to have its own individual port security plan, which is drawn up under the International Ship and Port Security (ISPS) Code. The initial security assessment for such a plan must first be approved by the State and the resulting plan must then, again, be approved by the State. Under the ISPS code there are three levels of security. Level 1 is every day business with no threat or minimum threat. Level 2 is heightened threat and Level 3 is imminent danger of action (Oral Hearing Transcript, Day 4 Page 127). In respect of LNG, if the Port Security Authority received a warning from the State that there is a heightened threat to security in relation to a particular vessel, then it would not be allowed into the estuary. The Authority would await either the arrival or permission from the military before the ship would be allowed to enter the estuary. The applicants clarified that if an LNG tanker was already moored at the time of such a warning, it would be asked to leave immediately (Oral Hearing Transcript, Day 4, Page 204).

There was a much lesser concern in relation to the safety risks arising from the land-based aspect of the LNG terminal, which is actually the subject of the present application. This would seem to be out of consideration of the much greater solidity of the LNG storage tanks and a perception, reflected in the submission of Dr. Havens, that a limited release of LNG, such as might occur following a pipe fracture or a valve failure on land, would be effectively contained. In response to questions, during the course of the oral hearing, the applicant's expert witnesses Mr. Ian Vinecombe and Mr. Leon Bowdoin explained the safety measures, which would be put in place to prevent accidental spillages at the terminal. To prevent overfilling of the storage tanks, a tiered approach is taken to measuring the level in the tank. Redundant

measurement systems, i.e. spare backed-up measurement systems, are used to ensure that a failure of a single instrument would not render the system unsafe. A high-level alarm sounds once the tank is close to capacity. Two discrete, functionally independent, instruments would read this high level alarm. The operator would then press the stop button and the unloading of the ship would cease. The action of stopping would trip the pumps on the ship to stop the flow of LNG and, again, there would be a redundant system to ensure that a failure in the stop signal could not credibly occur. Beyond this there would be an automatic shutdown system, which would be part of the emergency shutdown system at the terminal. Again, functionally independent instrumentation would read a level above the alarm point and would take automatic action to shut down the ship pumps, close emergency shutdown valves and stop the flow. Even if there were a total failure in all these systems, the LNG would overflow into the secondary containment area between the inner nickel steel tank and the outer tank. It was clarified that there would still be a high level of capacity, as the intervening perlite insulation is effectively air with a very fine structure around it to trap that air. In short, the perlite insulation has a high voidage. However, overfill is regarded as a non-credible event.

Queried as to whether safety measures would still operate in the event of a total electrical failure, it was confirmed that, again, a tiered approach would be adopted. In the event of an external power failure, if there were a loss of mains power to the plant, ship unloading would cease. An on-site emergency generator would maintain essential services. Instrumentation systems would generally be driven through an uninterrupted power supply (UPS) system, which is a battery backed-up system, where the power is fed into that system from the emergency generators. Instrumentation would be available for a defined period of time to allow the safe shut- down of systems.

Pressed further as to what might happen in the event of overfilling of the inner tank, it was stated that tank pressure would begin to rise and that, in itself, would trigger a set of reactions and shut-downs to stop the operation. If that too failed, the tank discretionary vent, i.e. the warm vent, would be allowed to operate. If this was insufficient, the cold discretionary vent would be allowed to operate and finally a triple redundancy in the vapour system. In total, there would be about seven or eight different systems, all layered, to manage such an event should it occur.

In conclusion, in relation to safety, it appears that the jetties and the land-based elements of the proposed development, the subject matter of the present application, should function safely. The risk zones would be centred on the unloading point at the end of the LNG jetty and a point immediately south of the second LNG storage tank. Only Zone 2 (workplaces and residential densities from 28 to 90 persons per hectare, depending on distance from risk centre, acceptable, but no shopping centres, large-scale retail outlets or undue concentrations of restaurant/pub facilities) and Zone 3 would extend beyond the application site boundary to the east and south onto agricultural land zoned "Rural General". The safety of LNG tanker ships in passage and while manoeuvring in the estuary is the responsibility of the Shannon Foynes Harbour Authority. Once moored, the Health and Safety Authority have taken the concept of a credible risk on the establishment arising from the tanker into account. This credible risk does not extend to a rupture of one of

the containment tanks on the ship. Such a rupture could only take place deliberately. It would be matter for the State security services to ensure that a tanker was not moored or in transit in the event of a sufficiently heightened security alert. Should it be the case that the risk of such a deliberate rupture and the consequences of such a rupture are unacceptably high at any time, then it would be for the State security services to intervene to prevent the entry of LNG tankers into the estuary.

Visual Impact

The visual impact of the proposed development is discussed in Section 5 of Volume 2 of the Environmental Impact Statement. At Section 5.3.2.2, on land use and vegetation, it is noted that the site consist primarily of improved agricultural grassland and, with the exception of a small area of tillage, the site is under grass and is used for grazing or hay/silage. Section 5.3.2.3, on topography, notes that the site and its immediate surrounds are generally undulating. It rises from sea level at the Shannon estuary to a high point of 35 metres OD at the southeast corner of the site. Through the centre of the site and along the stream, levels are low, rising from sea level at the estuary to 15 metres OD at the southern boundary. East of the stream levels rise noticeably at two hills, each over 21 metres OD near the southern boundary of the site and at Knockfinnisk at over 13 metres OD overlooking the coast. The topography is shown on Drawing No. C 012. West of the stream, there is a gradual rise from sea level up to 20 metres along the coast road at the southern boundary of the site. A prominent ridge, over 30 metres OD, runs eastwards from the site, visually separating the estuary from the coast road, other minor public roads and from more immediate and lower lying lands to the south.

Section 5.3.2.4 of Volume 2 of the EIS notes the presence of approximately 20 houses within 300 metres of the site boundary, some of them located immediately opposite the southern site boundary. The only two houses located within 600 metres of the main process area are Ralappane House, at a distance of 325 metres from the main process area, and a farm complex, to the east of Ralappane House, at 550 metres from the main process area.

Section 5.3.2.5 of Volume 2 of the EIS notes, amongst the surrounding features in the landscape, the presence of the power stations at Tarbert Island at a distance of 4.5 kilometres on the south shore of the estuary and Moneypoint at a distance of 2.5 kilometres on the north shore of the estuary. The twin stacks at each of these power stations rise to 155 metres and 220 metres OD, respectively. Their turbine halls are 55 metres and 65 metres high, respectively.

Section 5.3.2.6 of Volume 2 of the EIS, on landscape character and visibility, notes that the character of this low-lying gently rolling agricultural pastureland is strongly influenced and determined by its estuarine setting. The broad waters of the estuary are the defining landscape feature, while the prominent built developments at Moneypoint and Tarbert Island draw the immediate focus. The site, itself, is without features of particular note, such as cliffs, woodland, etc. It is particularly visible from the north shore of the estuary in County Clare, including Scattery Island and Hog Island. It is also visible from sections of the south shore, from Ballylongford Bay and Carrig Island. Portions of the site are noted to be openly visible from areas and properties immediately south, such as Ralappane House, but it is not particularly visible within the wider landscape.

In the national context, the only assessment of landscape quality is the *Inventory of Outstanding Landscapes in Ireland* produced by An Foras Forbartha in 1977. Under the inventory, no part of the site is listed as being within an area of outstanding landscape (EIS, Volume 2, Section 5.3.3).

Section 10.3.2 of the Kerry County Development Plan, 2003-2009, states that the coastal zone is of intrinsic natural and special amenity value and contains a number of areas that have been designated at European, national or county level. At Section 10.3.6, a coastal development zone is defined to include the areas over which the coastline has a functional and visual influence. This zone extends inland from High Water Mark to the nearest continuous coast road within visual influence of the sea. Objective EN 10-28 is to allow within the Coastal Development Zone only development for which a coastal location is required. The site is neither in an area of rural prime special amenity or rural secondary special amenity (Development Plan sections 11.2.7 and 11.2.8). Despite being located outside an urban area, the site is zoned industrial in an apparent recognition of its strategic location, as allowed under section 11.2.10 of the County Development Plan.

The Environmental Impact Statement (Volume 2, Section 5.3.4.1) notes the provisions of the Kerry County Development Plan, 2003-2009 (Section 11.4.1) on views and prospects. There is recognition of the need to protect and conserve views and prospects adjoining public roads throughout the county. The existence of such views and prospects should not give rise to a prohibition of development along these routes, but development, where permitted, should not seriously hinder or obstruct these views and should be designed and located to minimise their impact. In relation to the application site, views and prospects are shown on map 11.1 of the development plan, the views and prospects being those from Carrig Bridge accessing Carrig Island about 2.5 kilometres west of the site and the elevated lower slopes of Knockanore Mountain about 10 kilometres southwest of the site.

In relation to the Clare County Development Plan, 2005-2011, the EIS (Volume 2 Section 5.3.4.3) notes that the planning authority would identify where development which would interfere with views from roads designated as scenic routes would not normally be permitted. These designated scenic routes are specified in Appendix 9 of the development plan and are stated to include

"View 18: along coast road from Carrigaholt to Doonaha;

View 19: coast road southeast of Cappagh to Carrowdotin South;

View 20: R473 from outside Labasheeda to T junction before Kildysert."

(These "views" are, in fact, scenic routes).

The EIS (Volume 3, Figure 5.3) identifies 27 viewing points from which existing daylight views and photomontages of the completed development are presented in Section 5 of Volume 3. In addition, three of the chosen viewing points also have nighttime photomontages. The significance of visual impact is based on the significance criteria given in the *Guidelines on the Information to be contained in Environmental Impact Statements*, EPA, 2002. Five categories of impact are thus recognised, varying from imperceptible to profound and these are shown at table 5.1 of volume 2 of the EIS and are copied below.

In relation to photomontage views from the north coast of the Shannon estuary opposite the site and from positions immediately to the south and southwest of the site, it is noted that the proposed development would give rise to a significant negative impact (EIS, Volume 2, Section 5.5.3.1). From other areas, even those nearby the development, the proposed development would have a lesser visual impact. The undulating rural landscape would provide strong or even entire screening from the east. Four viewing points to the east and south of the application site are thus considered to suffer slight to moderate negative impact. Four views from further afield at up to 10 kilometres to the west of the application site and 8 kilometres to the southeast of the application site are held to suffer a slight to moderate negative impact as a result of the proposed development. In these more distant views, the existing power station developments at Moneypoint and Tarbert Island are held to take on a greater visual prominence and significance when seen in the wider landscape. It is recognised that the development would give rise to significant levels of visual impact for properties and viewers within the immediate areas south, southwest and west of the site and on the immediate north shore of the estuary.

During the course of the Oral Hearing, it was again noted that the proposed development would come within the visual context of two views and prospects within County Kerry and three scenic routes within County Clare. However, it was pointed out that these listings did not preclude development and that the existing generating stations at Moneypoint and Tarbert also fall within the visual context of these listings. It was considered that the proposed development would not be significantly obstructive or detrimental within these views (Submission of Thomas Burns, Section 5.7 - Oral Hearing Transcript, Day 5, Page 126).

Responding to some of the issues which had arisen in the written submissions to the Board, it was noted that concerns had been raised regarding the proposed 2.9 metre high boundary fence and that the photomontages did not show this boundary treatment. The proposed fence would be a 2.4 metre high chain link type surmounted by barbed wire, taking the full height to 2.9 metres. In general, it would be located at or close to the site boundary and, where existing hedgerows define that boundary, it would be located on the inside of such hedgerows. Where the boundary is undefined, open or adjusted, the fence would be located on the boundary and planting would be established on the inside. In either situation, it was submitted that the fence would not be particularly visible and would not give rise to visual intrusion or impact. While the fence had not been illustrated in the photomontages, it would, in fact, only be visible in View 3, Figure 5.3.3b. Particular concern had been expressed about the location of the fence along the coast road and in this regard, the applicant was willing to have the fence set back into the site where it could be screened by low planting along the roadside. Where the road is to be widened, the edge of the new road would be defined by a new sod and stone bank in keeping with the existing road boundary. A corrected photomontage View 3 (new Figure 5.3.3c) was submitted at the oral hearing. A further modified photomontage (new Figure 5.3.3d) was submitted with the boundary setback from the road.

In response to submissions stating that steps should be taken to reduce the visual impact of the LNG plant, it was pointed out that significant measures had been incorporated into the design of the facility, the layout of the facility and the proposed landscaping so as to mitigate landscape and visual impact. These mitigation measures included

- The use of lower-profile tanks – 8 metres lower than normal LNG tanks;
- The location of the tanks on the lowest practicable excavated base level;
- The excavation of a lowered base level on which to set the low-profile tanks;
- Making the best use of Ralappane Ridge-line for visual screening and backdrop;
- Adopting an overall compact layout, reducing its visual expanse;
- Using earth modelling and re-grading to screen and break up obviously engineered forms such as access roads and levelled areas, and;
- Extensive landscaping, including predominantly native and indigenous tree and shrub planting.

(Submission of Thomas Burns, Page 11).

In relation to an implication that the white colour of the storage tanks would be visually intrusive, it was pointed out that the tanks would be constructed of concrete and, as shown in the photomontages, might initially appear near-white when viewed in direct sunlight. They would, in time, fade or weather to a more visually recessive grey appearance.

The use of mature trees to provide screening along the coast road was rejected as many of the local residents wish to retain a view to the estuary and in addition, in the prevailing wind swept conditions, mature trees would be less likely to establish.

In relation to the claim that the photomontages do not show the storage tanks accurately, the applicants responded by referring to a case study of the construction of a photomontage, which had been presented at the Oral Hearing. This reviewed the step-by-step process in deriving one of the photomontages. (Submission of Thomas Burns). The applicants were confident that the representation of the tanks in the photomontages is fully accurate.

The applicants responded to a written submission from Clare County Council. This noted that the southern shores of the estuary were mainly rural and agricultural, that the Moneypoint power station formed an industrial focal point in the area and that views across the estuary to the site are expansive, particularly from points along the N67 National Secondary road. The submission also noted policy ENV2 of the West Clare Local Area Plan, 2003 that noted that the shorelines of the southern (*sic*) shores of the Shannon estuary and adjoining lands are designated as Visually Vulnerable in both the West Clare Local Area Plan, 2003 and the Clare County Development Plan, 2005. Policy ENV2 of the Local Area Plan states that proposals within such Visually Vulnerable areas would be permitted only where the development did not interfere with views of the water from any point within the Visually Vulnerable area or where the view of the skyline was not significantly impinged upon, when viewed at a reasonable distance from the ridgeline. The response pointed out that this designation and consideration referred to the functional area of County Clare, but nevertheless, the proposed development had

been designed, sited and mitigated in a manner, which would meet the objectives of policy ENV2. Firstly, the development would be viewed in the backdrop of existing views to and over the estuary and, secondly, the site would be regraded and lowered and low-profile tanks adopted, so as to avoid or reduce impact on the skyline when viewed from County Clare.

In relation to policy CDP51 of the Clare County Development Plan, which requires that there should be no degradation of the view towards and from visually vulnerable features, it was noted that the section of the N67 east from Ballymacrinan Bay already takes in open foreground views of Moneypoint power station together with more distant background views of Tarbert Island power station.

In relation to the adoption of a 2 by 2 block arrangement of the storage tanks, it was held that while these might have a lesser visual impact when seen from County Clare, this would be marginal, given the significant distance, insofar as such a block, or the intended straight line arrangement, would always form a smaller part of an otherwise expansive estuarine view. From County Kerry, a 2 x 2 block arrangement would have significantly increased the visual massing of the development from nearby views and from passing views from the coast road. Such a block arrangement would have necessitated significantly greater excavation into Ralappane Ridge, reducing its visual screening effect for houses and roads located further south. Having regard to the nature of the topography, it was likely that a block arrangement would require the second row of tanks to be sited at a higher base level, thereby increasing their visual presence both locally and when seen from County Clare. (Submission of Thomas Burns, Page 17 - Oral Hearing Transcript, Day 5, Page 153).

The applicant's submission noted the manager's report from Kerry County Council. This recognised the industrial zoning of the site and that the proposed development would have a significant visual impact. It held that negative landscape and visual impact should be considered against the wider significance of the proposed development, its specific locational requirements, the presence of other large prominent developments in the locality and the appreciation that any significant development with associated deep water jetty would be likely to give rise to similar landscape and visual impacts on this open site.

Overall, I consider that the visual impact of the proposed development has been reasonably presented. The photomontages appear to give a fair representation of the proposed development in relation to the surrounding landscape. Some of them may be criticised, insofar as they appear to exaggerate the distance of the proposed development from the viewer, making the existing view and the altered view appear more distant than is actually the case. The interpretation of the significance of the visual impact in some of the photomontages is also questionable. To describe the visual impact of the proposed development as shown in View 23 (EIS Volume 3, Figure 5.3.23b) as "significant" appears to be something of an exaggeration in the context of the intervening middle distance view of Moneypoint. "Slight" might have been more appropriate. View 10 (EIS Volume 3, Figure 5.3.10b) might have been better regarded as "moderate", rather than "significant". View 2 (EIS Volume 3, Figure 5.3.2b) would seem better described as "significant" rather than "slight to moderate". In views 5, 6 and 17 (EIS Volume 3, Figures 5.3.5b, 5.3.6b and 5.3.17b), the proposed development would be virtually invisible

rather than having a "slight to moderate" impact. Even allowing for the presence of Moneypoint, just out of the picture in photomontage views 24 and 25, I consider that the visual impact of the proposed development from viewpoints 24, 25 and 26, on the Clare coast to the east of Kilrush, (EIS Volume 3, Figures 5.3.24a, 5.3.25a and 5.3.26a) would be "significant", not only initially, as stated, but also in the longer term, rather than "moderate" (EIS, Volume 2, Page 5-13).

While the assessment of the significance of the visual impact from individual viewing points, contained in the Environmental Impact Statement, may be questionable, its summary of landscape and visual impacts (Volume 2, Section 5.5.5) in which it is recognised that the proposed development would have an impact on certain views and prospects in County Kerry and from scenic routes in County Clare, but that the development is located on lands zoned suitable for major industrial style development and that it would not have an impact on designated landscape amenity areas, is fair comment. The EIS recognises that the proposed development would entail the provision of a major industrial development on a prominent and visually open estuary shoreline. It would give rise to significant landscape and visual impacts, the nature of which are influenced by the presence of other large stand alone developments within the estuary. In particular, the development would give rise to significant levels of visual impact for properties and viewers in areas immediately south, southwest and west of the site and on the immediate north shore of the estuary. I consider that the mitigation measures noted previously and elaborated in the EIS at Volume 2, Section 5.6.2, go as far as practical to minimise the visual impact of the proposed development, while also accommodating the desire of many local residents and objectors to retain a view over the estuary.

As might be expected, the photomontages included in the Environmental Impact Statement show the proposed development seen from viewing points accessible to the public. View 3 (EIS Volume 3, Figure 5.3.3b) gives a reasonable impression of the visual impact when seen from the houses facing the site on the opposite side of the coast road. However, no photomontages are included showing the visual impact of the proposed development on Ralappane House at a distance of just 420 metres from the nearest proposed LNG storage tank and the farm complex to the east of Ralappane House at a distance of 720 metres from the nearest proposed LNG storage tank. Dr. Declan Downey from the School of History and Archives, University College Dublin on behalf of the Kilcolgan Residents Association, averted to the historic and architectural significance of Ralappane House. The house is a seventeenth century farmhouse, which makes it unusual in this country. It is on the site of a medieval manor house, which was part of the lands of Carrickfoyle. The house is L-shaped with four bays and a porch at the front. It is gable ended with chimneystacks set unevenly between the gable ends and has dormer windows with very interesting fretwork features around the windows and porch. Internally, it has some very fine eighteenth century panelling and a very fine staircase. It was supposedly the birthplace, in the seventeenth century, of the theologian, dualist and classical scholar, Bonaventure O'Connor Kerry. Despite its proximity to the proposed LNG storage tanks, Ralappane House would be reasonably well screened from the looming presence of the tanks, by its layout, with outbuildings to its rear, and by areas of deciduous woodland in its vicinity (see EIS, Volume 3, Figures 3.3 and 5.3.2a and 5.3.2b). Nevertheless,

additional screening in the fields/paddocks to the northwest and north would be beneficial. Despite being further from the proposed tanks, the residential farm complex to the east of Ralappane House, including a modern bungalow, would be more exposed. Should it be decided to grant permission for this development, I consider that both of these houses would, with the agreement of the relevant landowners, warrant additional planting in their vicinities at the expense of the applicants.

Noise and Vibration

The Environmental Impact Statement (Volume 2, Section 9.3) notes that the proposed site is located within a rural area with a low density of housing. The nearest noise sensitive locations are the houses indicated in Volume 3, Figure 9.1. Some 20 houses are within 300 metres of the site boundary, but only two houses, are within 600 metres of the process area at the northern end of the site, namely Ralappane House at a distance of 325 metres from the main process area and the residential farm complex to the east of Ralappane House at about 550 metres from this area. Although the houses on the coast road are further removed from the main process area, these houses would be sensitive to traffic noise during the construction phase. The nearest houses to the north of the application site are at a distance of 3.5 kilometres across the Shannon estuary in the Ballymacrinan Bay/Moyne Point area. Although this is a considerable distance, there would be a clear line of sight to these houses with favourable sound propagation over the water. In addition the facility would be located in a cut in the site, facing north, with consequent enhanced sound propagation in this direction.

Three noise measurement locations were adopted, as partly shown in figure 9.1, namely, the southern site boundary, 20 metres north of the coast road and at Ballymacrinan/Moyne Point.

In the case of the noise measurement location at the southern site boundary, this was characterised mainly by wind noise, birds and also by distant machinery noise from agricultural and other work activities in the area. Moneypoint power station was, occasionally, just audible. There was occasional low noise from aircraft. The average noise level was 55dB(A). This average dropped to 47 dB(A) in the evening and 45dB(A) by night. The EIS concludes (Volume 2, Section 9.3.2.1) that this is a quiet area with negligible industrial noise sources, minimal local activity noise and that the noise environment primarily arises from wind and birds.

In relation to the noise measurement location 20 metres from the coast road, it was noted that the main contributors were occasional vehicle movements, local activity noise such as gardening, distant farm machinery and distant house construction. Here the mean noise level was 48dB(A) $L_{Aeq\ 15\ minutes}$. The mean LA90 and LA10 levels were 37dB(A) and 48dB(A) respectively. (EIS, Volume 2, Section 9.3.2.3).

For the Ballymacrinan/Moyne Point measuring location, average levels were 53dB(A) by day, 55dB(A) in the evening and 52dB(A) at night. The position chosen was approximately three kilometres southwest of the Moneypoint power station, from which noise was occasionally barely audible.

In the event of the development not taking place, the measured noise levels could be expected to continue, as traffic growth along the coast road could be expected to contribute less than 0.1dB per annum - a negligible amount.

The Environmental Impact Statement (Volume 2, Section 9.5.1.1) notes that there are no mandatory noise limits for construction noise in Ireland or in the UK. The applicants have adopted noise limits in the *"Guidelines for the Treatment of Noise and Vibration in National Roads Schemes"* published by the National Roads Authority. Such construction noise limits have been used previously in Ireland on projects other than roads. The limits recommended in these guidelines are given in Table 9.5 of Volume 2 of the Environmental Impact Statement, as follows: -

Days and Times	$L_{aeq\ (1hr)}$ dB	L_{Amax} dB
Monday to Friday 07.00-19.00	70	80
Monday to Friday 19.00 to 22.00	60	65
Saturday 08.00 to 16.30	65	75
Sundays and Bank Holidays 08.00 to 16.30	60	65

No night time limits are specified in the National Roads Authority Guidelines, but as the proposed development would require some nighttimes working, in particular the construction of the berthing facility and the jetty, due to tidal restrictions, and the slip-form construction of the LNG tanks with continuous 24-hour concreting work for 28-30 days, it is felt reasonable that the nighttime noise level at the nearest houses should not exceed 45dB(A).

In considering the noise impact of the proposed development, during the construction phase, the actual construction was considered separately from the impact of construction traffic. The construction noise impact at noise sensitive locations is given in Table 9.6 of Volume 2 of the Environmental Impact Statement as follows

House Location	**Daytime Construction Noise Levels L_{Aeq}, dB(A)**	**Nighttime Works at Jetty L_{Aeq}, dB(A)**		
	Phase 1	**Phase 2**	**Phase 3**	
Ralappane	47	47	44	38
House on coast road to South	51	42	38	33
Houses to East	38	42	38	36
Houses to Southwest	42	38	35	32
Houses to North	15	22	16	18
cSAC/pNHA	51	50	45	48

Phase 1: construction of access roads, excavation of overburden, site preparation
Phase 2: deep excavation works, jetty construction
Phase 3: construction of tanks, buildings, installation of equipment

In relation to Ralappane House, it is pointed out that at night, during slip-forming, a similar level of noise to that for daytime construction noise could be expected.

Table 9.7 of Volume 2 of the EIS presents an analysis of the noise impact of construction phase traffic as follows:

Ref	**Location**	**2010 Calculated Traffic Noise Levels L_{Aeq} (daytime)**	**Change dB**	
		Do Minimum	**With construction traffic**	
1	R551 (Ballybunion Rd)	53.2	53.3	0.1
2	R552 (Main St. Ballylongford)	50.5	50.6	0.1
3	Coast Road	45	52.4	7.4
4	Ferry Port Road	52.6	53.2	0.6
5	Bridewell Street (Tarbert)	53.9	54.8	0.9
6	N69 (Listowel Road)	55.9	56.6	0.7
7	N69 (Limerick Road)	55.8	56.3	0.5

(Calculations in accordance with CRTN, using traffic AADT data from traffic section of EIS, with L_{A10} results converted to L_{Aeq}).

On most roads there would be a change of less than 1dB, which would be imperceptible. However, on the coast road, there would be a noticeable increase in traffic noise at 7dB. However, it is felt that the predicted overall noise level of 52dB(A) at the houses on the coast road is still low and the resultant noise impact is considered to be slight.

As noted previously, the operational phase of the proposed development, if permitted, would be subject to an IPPC licence from the Environmental Protection Agency. The Environmental Impact Statement (Volume 2, Section 9.5.2.) notes that the standard noise limits applied by the EPA are 55dB(A) by day and 45dB(A) by night. It is recognised that as the proposed facilities would operate continuously,

they must be designed to ensure compliance with the night-time noise limit of 45dB(A). The EIS notes that BS 4142 provides guidelines on potential noise impact by considering the level of industrial noise relative to background noise. An exceedance of 10dB indicates clear audibility, with potential for complaints. An increase of 5dB would not be so distinguishable, but might still give rise to complaints from more sensitive members of the public. It is pointed out that BS 4142 was devised for mixed residential and industrial areas, already subject to a detectable level of industrial noise. It does not specifically address noise impacts in areas where the background noise level is less than 30dB(A), as can happen in the vicinity of the application site, where background noise levels as low as 22dB(A) were detected. In such areas, any new industrial noise source would always be significantly in excess of the background. In these cases it is the level of noise transmitted inside a house that needs to be considered.

Noise levels are predicted for the various mechanical components of the proposed development. Details of these components (33 in all) together with their noise outputs and any indicative acoustic attenuation required is given in table 9.8 of Volume 2 of the EIS. Projected plant noise levels due to the LNG terminal are in the range 10dB(A) to 35dB(A) by day and by night. By day, the additional noise from the LNG terminal at noise sensitive locations would result in an increase of at most 1dB in total ambient noise at the nearest noise sensitive location. This would apply also to the candidate Special Area of Conservation and the proposed Natural Heritage Area. A similar maximum increase would apply at nighttime at the nearest noise sensitive location. At Ralappane House, the additional LNG site noise of 35dB(A) would add at most 1dB to the existing ambient nighttime noise level of 40dB(A). Allowing for an attenuation of approximately 15dB through a partially opened window, the resulting indoor noise level would be 20dB(A), comfortably within the BS 8233 guidelines and representing an extremely low noise level, which would be unlikely to be audible. Additional noise arising from traffic during the operational phase is predicted to amount to 1.7dB at a reference distance of 20 metres from the coast road. This would not be subjectively clearly noticeable and would be just detectable by direct measurement.

In relation to construction phase vibration (EIS, Volume 2, Section 9.5.1.6), it is noted that blasting at the site would generate ground vibration. Ralappane House is the closest house to the area where blasting would occur, being 325 metres away from the main process area. Based on experience at quarry and road construction sites, it is considered that ground vibration levels of less than 2 millimetres per second would be achievable at Ralappane House. This would constitute just perceptible ground vibration, with no risk of cosmetic damage. Following a literature review, no definitive data was obtained on the impact of on-shore blasting on marine mammals. The transmission of blast noise levels into the sea from the application site are likely to be similar to the noise levels produced by shipping and as such, unlikely to effect the resident dolphin population. Acoustic monitoring of the site for dolphins would continue during construction to determine whether there had been any change in the use of the estuary adjacent to the site by bottlenose dolphins. Blast overpressure – the low frequency sound wave generated by blasting – could produce a startle response in wildlife. However, birds commonly nest in close proximity to quarry sites where blasting takes place and raptor species use quarries as a safe refuge. They have been known to nest within a few hundred metres of blast areas.

Responding to a question during the Oral Hearing, which expressed concern that

even a tractor passing on the coast road was sufficient to cause articles on the mantelpiece of a local resident to shake, the applicants, nevertheless, expressed confidence that blasting would not even cause cosmetic damage to a house 800 metres distant.

I consider, in relation to noise and vibration, that the construction phase of the proposed development should be capable of being carried out in a manner, which would not cause undue injury to the residential amenity of the nearest houses or to the adjacent candidate Special area of Conservation and proposed Natural Heritage Area. Similarly, it appears that the operational phase of the proposed development, with appropriate acoustic attenuation, should be capable of operating in a manner, which would not prove unacceptable in the locality. This was born out by my own experience of an operational LNG storage and regasification facility at Zeebrugge in Belgium. There is nothing, in relation to noise and vibration during the operational phase, which would warrant a refusal of permission on environmental grounds.

Roads and Traffic

Access to the application site would be gained via the Tarbert-Ballylongford coast road, the L1010. Once it leaves Tarbert, this road becomes sub-standard in width and vertical and horizontal alignment. It primarily serves agricultural land and individual houses, the R551 further south being the main route between Ballylongford and Tarbert. Table 6.1 of Volume 2 of the Environmental Impact Statement shows the traffic levels on this road during the morning and evening peaks. On Tuesday 13th February 2007, between 7am and 10am, there were just 41 vehicle movements and between 4pm and 7pm, 52 vehicle movements. This compares with 288 vehicle movements and 316 vehicle movements respectively on the R551 on the same date.

For the purposes of traffic generation, the Environmental Impact Statement assumes the construction of two LNG storage tanks, initially and the other two tanks at a future date. This would give rise to 650 construction workers on site at peak (515 vehicles, 85 visitor vehicles to the site per day, 30 light goods vehicle deliveries per day and 85 heavy goods vehicle deliveries per day). It is assumed that 80% of construction workers would arrive between 07.00 and 08.00 hours and would leave between 17.00 and 18.00 hours (EIS, Volume 2, Section 6.3). 90% of the traffic is expected to use the coast road to the east of the construction site entrance. In 2010, at the height of the construction period, predicted peak summer traffic flow is shown to rise from ten vehicles per hour between 07.00 and 08.00 to 454 vehicles per hour (EIS, Volume 2, Tables 6.9 and 6.11). During the evening peak, between 17.00 and 18.00, the respective figures are 32 vehicles per hour and 455 vehicles per hour.

Traffic levels on Bridewell Street in Tarbert are predicted to rise from 179 vehicles per hour to 549 vehicles per hour in the 07.00 to 08.00 morning peak and from 465 vehicles per hour to 817 vehicles per hour between 17.00 and 18.00 hours. The last mentioned figure represents an increase of 75% and the EIS notes that this time period will be the most critical in terms of traffic impact.

The effect of the additional traffic on local junctions is assessed in the EIS (Volume 2, Section 6.5). Four junctions were analysed using the UK Department of Transport Computer Software PICADY. The following four junctions were

examined:-

- The R551 (Ballylongford to Ballybunion Road)/R552 (Ballylongford to Listowel Road).

- The R551 (Ballylongford to Tarbert Road)/Coast Road.

- The N67 (Ferry Port Road/Bridewell Street).

- The N69 (Listowel to Tarbert Road)/Bridewell Street.

Tables 6.13 to 6.36 of Volume 2 of the EIS show that all of these junctions would have sufficient capacity. During the operational phase of the development, the projected traffic flows are significantly lower. There would therefore be a reduced impact.

Mitigation measures are proposed at section 6.6 of Volume 2 of the Environmental Impact Statement. It is proposed, in conjunction with Kerry County Council, to upgrade the coast road from the LNG terminal to Tarbert. No HGV traffic would be allowed to pass the comprehensive school on the coast road at Tarbert for 20 minutes before and 10 minutes after opening and closing times. During the operational phase, various shift starting and finish times would be staggered. Certain traffic management improvements are intended on Bridewell Street, consisting, primarily, of the provision of double yellow lines at the junctions of the N67 (Ferry Port Road)/Bridewell Street and the N69 (Listowel to Tarbert Road)/Bridewell Street. A narrowing of the coast road at its junction with the R551 Ballylongford Road would act as a deterrent to traffic failing to stop and continuing straight on to Bridewell Street. A detailed construction traffic management plan would be produced as part of the contractual arrangements for the construction of the terminal. This would be agreed with the planning authority before implementation. This would include measures to direct construction traffic, as far as practical, along the upgraded road from Tarbert to the site, rather than along the road from Ballylongford.

During the Oral Hearing, the applicants responded to a written submission requesting that similar traffic restrictions as proposed for the Comprehensive School should also be applied to the National School on the Listowel Road. It was pointed out that Tarbert National School is located on the N69, which is part of the National Road Network. As such it is designed to cater for long distance movement of goods and passengers, including the movement of heavy goods vehicles. At the school opening period, the percentage increase in traffic would be relatively modest, at 15%, and would not impact significantly on prevailing traffic conditions. Furthermore, the restrictions proposed for the coast road opposite the Comprehensive School should act to reduce the volume of trucks entering the general Tarbert area, as no access to or from the site would be possible during the start and end times of that school.

A written submission that the upgrading of the coast road should be continued to Ballylongford was rejected on the grounds that Tarbert is served by the National Road Network. The planning authority's assessment of alternative road improvement options indicated that improving the coast road from the proposed site to Tarbert offered the best solution in terms of access. Upgrading the roadway as

far as Ballylongford would be inappropriate, as it would encourage greater traffic flows through the village of Ballylongford, which was not designed to accommodate such traffic.

In response to a written submission that construction traffic should not be allowed to travel to the site for five minutes before or after the arrival of the ferry in Tarbert, it was recognised that some delays are experienced by ferry traffic within Tarbert. These delays are generally short and the submitted traffic impact assessment concluded that the junction of the Ferry Port Road and Bridewell Street had sufficient capacity to accommodate the projected peak flows.

Following the submission, on behalf of the applicants, in relation to roads and traffic at the Oral Hearing, there was further discussion in relation to restricting traffic passing the National School on the N69 in Tarbert. It emerged that the opening time of the Comprehensive School on the coast road is 9am. It closes at 3.50pm, with an earlier closing time of 2pm on Wednesdays. The National School opens at 9.20am and closes at 2pm for younger children and 3pm for older children. It was pointed out that the Comprehensive School is already on a wide section of road with good parking and a facility to allow school buses pull into the school grounds. The National School is on a narrower road within a built up area of the town, with less parking provision and can suffer from traffic tailbacks from the T-junction in Tarbert.

Nevertheless, I consider the tailoring of the restriction on construction traffic to suit the opening and closing times of the Comprehensive School on the coast road to be appropriate. The HGV construction traffic would represent a relatively small addition to the existing traffic on the N69 Listowel – Tarbert - Limerick National Secondary Route. Being within a built-up area on a fairly narrow, slightly curving street, traffic passing the National School tends to travel relatively slowly, unlike the wide, straight, albeit sloping, section of the coast road which passes the Comprehensive School. It is unlikely to be practical to extend the restriction on construction traffic to cover the opening and closing times of both schools. A partial solution, at least in the morning, would appear to be to alter the opening time of the National School to 9 o'clock.

During the course of the Oral Hearing, an issue arose in relation to the location of the proposed administration entrance directly in front of the house of one of the objectors, Mr Raymond O'Mahony. It was pointed out that visibility to the east of Mr O'Mahony's house entrance is severely restricted at present and he would now have to contend with greatly increased traffic levels. The applicants initially pointed out that the location of the administration entrance would make no difference to the objector's sightlines, but subsequently they noted that as part of the road improvement works to facilitate the development, the embankment on the opposite side of the road could be lowered to provide improved visibility. Furthermore, following discussions with the planning authority, they offered to relocate the entrance to the administration complex further eastwards so that it would not be opposite the site of the objectors home**. I consider that this relocation would offer a considerable improvement to the objector, particularly at night, when vehicles exiting the application site on the original alignment, would have resulted in headlights shining directly at the objector's house. The applicants submitted a revised drawing showing the modified entrance layout and alignment. As the road improvements are currently the**

subject of a Part 8 procedure, should the Board decide to grant permission for this development, it would be appropriate to condition the relocation of the administration entrance, but the remainder of the road improvement works, including the improvement of the objectors sightlines, must await the outcome of the Part 8 procedure.

Archaeology

Archaeology, architectural and cultural heritage is considered in Volume 2, Section 14 of the Environmental Impact Statement. Section 14.2 sets out the methodology as follows:-

- A desktop assessment of the proposed application site and an area within a two kilometre radius of the site.

- A field inspection of the proposed development (Volume 4, Appendices 14A and 14B).

- An aerial fly-over of the proposed development (Volume 4, Appendix 14D).

- A targeted archaeological geophysical survey within the application site (Volume 4, Appendix 14E).

- Archaeological monitoring of engineering trial pits (Volume 4, Appendix 14G).

- A marine geo-archaeological survey (Volume 4, Appendix 14H).

In the desktop assessment a wide range of the normal published relevant documentation was consulted. In addition, the geo-technical study undertaken on behalf of the applicants to provide information on the underlying geology and ground conditions was consulted and there were consultations with the National Monuments Service of the Department of the Environment, Heritage and Local Government and with three named local residents.

Field inspections were carried out on 30th and 31st May 2006 and 13th April 2007. Each field within the application site was walked and inspected. The primary purpose of the field inspection was to assess the current condition of the recorded rath (KE003-004) at the eastern edge of the application site.

An aerial survey of the site was carried out on 14th August 2006 from a helicopter flying at between 300 and 1,000 feet. The primary purpose of the aerial survey was to identify any trace of the western enclosing bank/ditch of the recorded rath and to identify any further possible features of archaeological/cultural heritage significance.

An archaeological geophysical survey was carried out between 3rd and 10th October 2006 with the objective to determine the location, nature and extent of buried archaeological remains, where present, within eight areas of archaeological potential highlighted from the field inspection, aerial survey and cartographic research.

16 of the 30 engineering trial pits were archaeologically monitored on 9th, 10th and 13th November 2006.

The marine geo-archaeological survey detailed and interpreted the inter-tidal marine archaeo-geophysical survey data recorded at and adjacent to the marine structural components.

Although Table 14.1 of Volume 2 of the EIS shows 21 recorded monuments within the study area, just one such monument is found within the application site, namely, KE003-004, a rath, at the eastern extremity of the application site, partly within the site in the townland of Ralappane and partly outside the site, in the adjoining townland of Carhoonakineely.

The post-medieval period is noted to be well represented within the application site. Upstanding structures include three farm complexes, two residential buildings, a gun emplacement, a well and a structure for storing fish gear, as well as the possible remains of a forge/smithy, the limited remains of a further structure and a possible mass rock. These are shown on Figures 14.3, 14.4 and 14.5 of Volume 3 of the EIS.

The aerial survey revealed no visible trace of the recorded ringfort KE003-004. Six areas were highlighted as being of potential archaeological significance, but only one of these was evident above ground (EIS, Volume 3, Figure 14.7).

The geophysical survey investigated one possible archaeological feature noted during the preliminary geo-technical survey and five potential sites identified by the aerial photographic survey, one potential archaeological site identified during the field inspection and the western zone of the ringfort. No definitive archaeological remains indicating significant archaeological features were found in relation to the feature identified in the preliminary geo-technical survey nor those in the aerial photographic survey. Investigation of the site, identified during the field inspection, revealed significant concentrations of suspected burnt/fired material, possibly associated with a fulacht fiadh or burnt mound remains. A full geophysical survey was carried out in the two fields adjoining the ringfort site. Here another concentration of burnt material was found, as well as some areas of strong magnetic disturbance warranting further examination. Around the levelled ringfort (KE003-004) the enclosing ditch and some internal remains were identified.

An examination of Ordnance Survey mapping taken at 20,000 feet revealed an additional five potential archaeological sites, as shown in the EIS, Volume 3, Figure 14.12. These consisted of four circular areas and one linear feature.

The marine geo-archaeological survey consisted of an inter-tidal survey and a marine archaeo-geophysical survey. The inter-tidal survey was by way of a walk-over, complemented by photography. It revealed nothing of archaeological interest.

The marine archaeo-geophysical survey showed no magnetic anomalies of significance. Just one site of archaeological potential was identified, namely, an upstanding, sub-circular anomaly interpreted as potential debris from fishing vessels and shipping in the Shannon estuary. At 200 metres east of the proposed development, it was considered to be unlikely to be directly affected by the development (EIS, Volume 2, Section 14.3.9.1).

The EIS notes that proposed development would impact six upstanding structures identified during the field inspection, namely three farm complexes, a well, a gun emplacement and the partial remains of a structure. It would impact on ten possible archaeological features and three areas of possible archaeological potential. It would impact on a well (Tubberagleanna). A number of fields were found to contain a typical environment in which fulachta fiadh would be found and were therefore considered to be Areas of Archaeological Potential. It is noted that the proposed development would entail the removal of topsoil and a substantial amount of ground reduction. With extensive earth moving, there is always the possibility that previously undetected, sub-surface archaeological remains may be revealed.

In terms of mitigation, an extensive programme of pre-development licensed archaeological testing would be undertaken in the eastern half of the site where the initial development would take place. Linear trenches, ten metres apart, would be excavated where topsoil will be removed. These areas are indicated in Volume 3, Figure 14.12 of the EIS. Where potential archaeological sites have been identified, targeted testing would be carried out, if considered necessary. The testing would be followed by a full archaeological resolution, i.e. complete excavation of the features identified, before construction commences. Archaeological testing would be undertaken outside the western perimeter of the ringfort and this would inform the size and extent of a buffer zone. The possible underwater feature would be avoided.

During the Oral Hearing, the applicants responded to written submissions, which had been received by the Board. In response to a request that all archaeology should be protected, it was pointed out that just one known recorded archaeological site, a ringfort occurred within the application site. A buffer zone would be established around this ringfort, within which no development would be permitted. Any other archaeological remains identified during archaeological testing would be preserved by record, i.e. there would be complete excavation of the features identified before construction commences. In response to a submission that the demolition of houses should not take place because they are part of the cultural heritage of the area, it was pointed out that there are no protected structures within the application site and the National Inventory of Architectural Heritage recommended none for protection. A written and photographic survey would be made of all impacted structures in advance of their removal.

In response to mitigation with respect to secondary or passive impacts, raised in a submission from the Department of the Environment, Heritage and Local Government, in relation to marine archaeology, it is stated that features identified as potential archaeology would be protected by the distance (greater than 15 metres) from the chlorinated seawater outfall and that the 20 metre depth would protect such features from propeller wash, which would be at a depth of just 12 metres. In response to a recommendation from the Department that a diver survey should be carried out along the footprint of the proposed jetties, it was stated that this was not recommended as no features of archaeological potential were noted during the side scan surveys of the jetty footprints.

Should it be decided to grant permission for this development, I consider the imposition of a detailed condition on archaeology would be required.

Ecology

In relation to the ecological aspects of the proposed development, the Board

retained the services of an ecologist, Mr John Brophy, as an advisor. Mr Brophy reviewed those aspects of the application, and in particular, the Environmental Impact Statement, in relation to ecology and the written submissions received by the Board. He also sat in on the Oral Hearing and considered the matters, which were raised during the ecology module of the hearing. Mr Brophy's report is attached at the end of my report. It may be seen from this report that Mr Brophy is generally satisfied that the proposed development would be acceptable from an ecological point of view, provided certain further requirements are met. These requirements could be stipulated by way of conditions attached to a permission.

A concern raised in the consultant's report relates to the impoundment of the stream to form a pond, primarily for the hydro-testing of the LNG storage tanks. This would alter the morphology and ecology of the watercourse, as well as being likely to change the physical and chemical character of the water. He holds that this may not be in line with the European Water Framework Directive (2000/60/EC). He notes that a member state would not be considered to be in breach of the Directive, if the reason for not meeting its requirements for a water body complies with the conditions set out in article 4, paragraph 7 of the Directive. He is unclear as to whether the proposed development satisfies these conditions, in particular, as the River Basin Management Plan for the Shannon River Basin District has yet to be published.

The consultant's report questions whether the stream should be considered a water body for the purposes of the Water Framework Directive. It may be too small. Annex (ii) of the Directive outlines two alternative systems for characterising surface water bodies. System A does not assign a typology to rivers with a catchment area of less than ten square kilometres. However, Ireland has adopted system B which classifies rivers on the basis of geology (water hardness) and slope, but does not consider size. The European Commission Guidance Document *"Common Implementation Strategy for The Water Framework Directive (2000/60/EC). Identification of Water Bodies. Guidance Document No. 2. Working Group on Water Bodies"*, suggests that a very small water body which is not significant in the context of the Directive's purpose and objectives, need not be identified as such, but rather protected and enhanced, where necessary, in order not to compromise the achievement of objectives in other water bodies. The consultant's report holds that the stream should not be considered to have a high ecological value and points out that its area falls below the 10 square kilometre threshold set out in System A. The consultant's report states that it could be argued that the stream is not of sufficient size or importance to constitute a water body and that its protection should be viewed in the light of potential impacts on other water bodies.

I consider that the Board should take the view that the stream is not of sufficient size or importance to constitute a water body and that the proposed development would not affect the stream in a manner which would compromise the achievement of the Water Framework Directive's objectives in relation to the River Shannon. However, should the Board take the view that the stream does, in fact, constitute a water body under the Directive and that it therefore requires protection as such, the alternative, suggested in the consultant's report, of a redesign of the proposed impoundment restricting it to the southwest of the existing stream, only, with the probability of additional excavation, as well as alternative means of undertaking the hydro-tests e.g. the use of seawater (dismissed in the EIS (Volume 2, Section 2, page 2-23, despite

being used elsewhere, e.g. Zeebrugge) or desalination (dismissed on the grounds of cost) would need to be explored further by way of a request under Section 37F of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006.

Hydrology and Hydrogeology

The issue of hydrology and hydrogeology is considered in Volume 2, Chapter 13 of the Environmental Impact Statement. It is noted that the proposed construction would interact with both surface water and groundwater in a number of ways as follows: -

- A 30 metre high cutting would be excavated in the LNG tank area, intercepting surface and groundwater flows towards the River Shannon. While this would be a small amount, there is the possibility of contamination with suspended solids.

- The construction of a pond on the stream traversing the site could affect the availability of surface and groundwater to the wetland habitats located down stream.

- Areas of hard standing could diminish the local groundwater supply to any wetland habitat areas lying down slope.

- A number of local dwellings rely on pumped groundwater wells and boreholes and the proposed development could impact on this water supply.

- Exposure of bedrock could give rise to potential aquifer impacts.

Stream-flow monitoring was undertaken at six locations along the stream. Information on actively used wells and water supply boreholes within a 2-kilometre radius of the site was obtained from the Geological Survey of Ireland's Groundwater Section.

The water, which would be stored in the pond, would be primarily derived from that part of the stream upstream of the site. This has a catchment of about 2.1 square kilometres. The two lesser streams, which merge to form the stream traversing the application site, at a distance of about 1.5 kilometres to the east of the point of entry to the application site, contribute just two litres per second of flow to the stream volume. Starting a short distance downstream from the Carhoonakineely/Ardmore access road, about a kilometre to the east of the point of entry to the application site, the stream flow begins to increase, as does its width and depth. By the time it reaches the access road to Ralappane House, the flow has increased to three to five metres per second, the two metre diameter stone arch bridge at that point indicating an even stronger winter flow. The base flow continues to increase downstream of this bridge and it is claimed to have a visually estimated base flow of 7.5 metres per second by the time it enters the application site (EIS, Volume 2, Chapter 13, Page 13-5). This is attributed to influent groundwater flow upwelling along the gravel bed of the stream. The 7.5 litres per second visual estimate was taken on the 17th April 2007, but by the 23rd to 24th April, 2007, when preliminary measurements of surface flow were taken at the six locations along the stream, at a time of quite heavy rainfall, the flow had doubled. Along the middle part of the stream, where it

crosses the site, the flow is as much as 25% reduced from the point of entry to the site. This is attributed to recharge to the underlying fractured bedrock, which outcrops or occurs at shallow depth within the middle section of the onsite part of the valley (EIS, Volume 2, Chapter 13, Page 13-6).

The monthly averages of rainfall and evapo-transporation are taken from the nearest weather station for which long-term data is available, namely, Glin, 11 kilometres east of the application site. Table 13.1 (EIS, Volume 2, Chapter 13-7) shows that for April, there is a surplus of 16 millimetres of rainfall over evapo-transporation. This equates to 13 litres per second stream discharge when taken over the entire catchment area. It is noted that prior to the stream walkover on the 17th April 2007, the previous four weeks had been exceptionally dry, with just 2 millimetres of rainfall. The visually estimated flow of 7.5 metres per second was thus probably atypical. In the month of May and June the surplus of rainfall over evaporation is shown to be 0 millimetres and -3 millimetres, respectively. The EIS holds that during this period extreme low flow might correspond to as little as 5 litres per second, with a more typical value of 7.5 litres per second (Volume 2, Chapter 13, Page 13-8). To provide sufficient water to the wetland and maintain a minimum water level in the stream channel to prevent excessive saltwater intrusion, the baseflow in the lower part of the stream would be regulated by allowing a minimum of 10 litres per second to pass through the water storage facility at all times. This is claimed to be equivalent to reducing the mean monthly rainfall contributing to storage by 12.5 millimetres. During the pond-filling period, the 10 litres per second flow would be maintained, even in the summer months, when natural flow might be less.

On hydrogeology, the Environmental Impact Statement (Volume 2, Chapter 13, Section 13.4) notes that the site is located in an area characterised by poor/minor aquifers. This arises from the Namurian bedrock strata, which have very low permeability and low effective porosity. Within the main development area of the application site, because of the relatively low permeability of the glacial superficial deposits and the sloping nature of the site, it is estimated that 50% of the surface water would run-off or be lost in evapo-transpiration, before it would have a chance to penetrate into the groundwater environment. In the main development area a layer of fractured bedrock to a depth of 10-13.5 metres below the bedrock surface is sandwiched between impermeable glacial till and unweathered or only slightly weathered bedrock. The fractured bedrock allows fissure flow and can thus give rise to artesian conditions. This is particularly the case in the western part of the main development area where the fractured bedrock remains beneath the glacial till at the shoreline, unlike the eastern part where the fractured bedrock is exposed at the shoreline.

As can be seen from the groundwater contours shown in the EIS (Volume 4, Figure 13.6) the predominant direction of groundwater flow is towards the Shannon, reflecting the general ground surface contours. The low-lying wetland areas located to the west of the main development area would not be affected by the development.

A borehole was sunk at position PW1 as shown on Figure 12.4(a) of Volume 4 of the Environmental Impact Statement where neighbouring ground investigation boreholes had indicated artesian conditions. It was hoped that this might provide an adequate supply of groundwater for hydro-testing the tanks, but the borehole yielded just 1.4 litres per second in a 28.6 hour constant discharge test and was felt likely to yield less then 1 litre per second in the long term. This was held to be

insufficient for water supply purposes (EIS Volume 2, Chapter 13, Page 13-11). I estimate at this flow rate, it would take 3½ years to provide the 110,000 cubic metres necessary for hydro- testing.

In the EIS, in relation to hydrology and hydrogeology, impacts are classified as either hydraulic or hydro-chemical (Volume 2, Chapter 13, Page 13-14). Table 13.4 shows the results of a hydrological and hydrogeological impact assessment with respect to habitats with conservation/designation status. The overall finding is that the proposed development could be implemented without significant negative residual impacts on any of the protected habitats, particularly those wetland habitats located downstream of the proposed embankment structure across the stream.

The regulation of the stream to a minimum base flow of 10 litres per second to supply the wetland habitats is seen as beneficial as it would guarantee a surface water supply even under drought conditions and would help to offset the effects of saline penetration, which presently occurs when low flow conditions in the stream coincide with spring tides in the estuary. It is claimed that preliminary discussions with the National Parks and Wildlife Service had confirmed the desirability of this regulation.

A potential impact of the proposed development arises from the excavation of a large volume of material at the north of the site on bedrock groundwater levels to the southeast. Some drawdown in groundwater would be inevitable as a result of seepage from the cutting face. It is claimed to be difficult to ascertain how far upslope this drawdown effect would extend, but it would be unlikely to extend beyond 500 metres of the cutting face. It is conceded that water supply boreholes falling within the 500-metre zone might experience some diminution in yield, particularly in the summer. Boreholes within this 500-metre catchment would be monitored during construction and if adversely affected, an alterative water supply would be provided by the applicants, subject to the owners' agreement.

During the course of the Oral Hearing, the applicants dealt with written submissions to the Board. It was confirmed that following the filling stage of the pond, the stream would be allowed to revert to its existing seasonal flow variation (Oral Hearing Transcript, Day 6, Page 148). As noted in Volume 2, Section 13.6 of the EIS, groundwater seepages and run-off from cutting faces, as well as surface water, arising from direct rainfall onto platform areas, would be removed from the main construction area by means of suitable falls on subgrade surfaces and temporary drainage ditches. It would then be passed through a series of settlement and filtration ponds to remove any suspended solids, before being discharged directly to the Shannon. During construction of the embankment and pond, the stream would be culverted along this entire section in order to avoid any increase in siltation reaching the wetland areas.

Overall, I consider that the proposed development would be satisfactory from a hydrological and hydrogeological point of view. Although the maintenance of a 10 litres per second flow regime in the stream downstream of the embankment is seen as beneficial, this may not necessarily be the case and would require monitoring. However, the intention is that this would be just for two years while the pond filled and that after that the existing flow regime would be restored. This, too, might not be desirable and would require monitoring.

Possible Rights-of-Way

During the course of the Oral Hearing, issues arose as to the possible existence of two rights of way within the application site.

Just inside the southwestern boundary of the site, but outside the proposed fence line, a narrow road leads down from the coast road for a distance of 730 metres towards the shoreline of the River Shannon. At this point it crosses a track leading northeast and southwest. The application site boundary is then shown to deviate in a southwesterly direction for some 50 metres, before resuming its northwesterly orientation for the remaining 250 metres down to the shoreline. The proposed fence line follows a similar alignment just inside the site boundary (see Drg. C013). The narrow road continues on for a further 150 metres, at which point, it terminates in a turning or parking area. This length of the road is shown to be well within the site boundary and the proposed fence line. The road has a tarmacadam surface. Standard warning signs indicate the junction with this road when approaching along the coast road from the northeast and southwest. The road is signposted "Kilcolgan Strand".

There was a discussion on the status of the road and its future during the course of the Oral Hearing. The current owners of the application site, Shannon Development, took the view that while there might be a right of way over the road, it was in their ownership (Oral Hearing Transcript, Day 7, Page 85). Ultimately, it was confirmed by the planning authority, that the road was a public road up to the position of the track, which crosses it at a distance of about 750 metres from the coast road. Thereafter up to and including the car park/turning area, it is a private road.

The applicants indicated that it was not their intention that the status of this road would be changed. Accordingly, they would submit a revised site map showing their boundary and the boundary fence relocated so that it would be inside (northeast) of the entire length of the roadway, both public and private, and would continue on that alignment until it met the coast. The submission of this map was clearly flagged at the Oral Hearing (Day 8, Pages 108 and 109) and has now been received by the Board.

The second possible right-of-way is that which is the subject matter of four written submissions received by the Board from Tina O'Connor, Eileen O'Connor, John O'Connor and Anne O'Connor, through their solicitors. They claim a right of access in a northeasterly direction from the private track junction on the Kilcolgan Strand road through the farm complex, known as "Stevie Lynch's Farm" and then diagonally to reach a 1.88 acre plot immediately to the southwest of the mouth of the stream. This is marked "Area B" on maps submitted with the written submissions. One of the submissions claims a vehicular and pedestrian right-of-way. It seems that the 1.88-acre plot is in the ownership of one of the objectors, John O'Connor, and does not belong to Shannon Development. It is used for the grazing of ponies and cattle. The proposed lay down area would be in the position of the alleged path to the objectors' holding.

The applicants had been advised that Shannon Development did not own the 1.88-acre parcel of land, but that they were not aware of any right-of-way over their land to this plot of land (Oral Hearing, Day 1, Page 188). It was suggested, on behalf of Shannon Development, that at least one of the objectors, Ms. Eileen O'Connor, had

written to Shannon Development through the objectors' solicitors claiming a right-of- way through the Shannon Development lands and that they, in turn, had sought evidence of such a right-of-way (Oral Hearing Transcript, Day 3, Page 234).

The applicants recognised that if such a right-of-way exists, a means of access would have to be maintained in a manner, which did not interfere with the construction or expose the users of the alleged right-of-way to any unnecessary risks (Oral Hearing Transcript, Day 3, Pages 231 and 232).

Should the Board decide to grant permission for this development, I consider that the southwestern boundary of the application site should be altered so that the site boundary and boundary fence is located to the northeast of the road to Kilcolgan Strand and the application site reduced, accordingly. In the event that it transpires that a right-of-way does in fact exist across the application site to the O'Connor landholding, then the means of accommodating this right of way should be submitted to the planning authority for its records. In addition, it would seem advisable to remind the applicants of the provisions of Section 34(13) of the Planning and Development Act, 2000, whereunder a person is not entitled, solely by reason of a permission, to carry out any development.

Project Splitting

Chapter 18 of Volume 2 of the Environmental Impact Statement is entitled "Ancillary Projects". It is noted that there would be three ancillary projects associated with the LNG terminal. These are the construction of a pipeline to transport the gas from the terminal to the Bord Gais transmission grid, the construction of a transmission power line to supply the terminal with electricity and the upgrading of the coast road between Tarbert and the terminal site.

The existing gas transmission pipeline, which is owned and operated by Bord Gais, is routed via Shannakea Beg Above Ground Installation (AGI) on the north side of the Shannon Estuary to Craggs AGI, just to the southeast of Foynes, on the south side of the estuary. From its landfall on the south side of the estuary it runs to the west and south of Foynes to reach Craggs AGI. Three possible routes between the application site and the Bord Gais pipeline are shown in the Environmental Impact Statement (Volume 4, Figure 18.1). Two of the corridors cross the Shannon and join the existing pipeline in the vicinity of Shannakea Beg. The preferred corridor is shown to travel eastwards from the application site, inland and approximately parallel to the southern shoreline to join the Bord Gais pipeline between its landfall on the south shore of the Shannon and Craggs AGI. The Environmental Impact Statement (Volume 2, Sections 18.2.2 and 18.2.3) shows that considerable preliminary work and ongoing work has taken place in relation to the pipeline.

The Environmental Impact Statement (Volume 2, Section 18.3) notes that electricity demand for the terminal would be somewhere between 40 and 50 megawatts. A 110 kV supply would meet this demand. An application has been made to EirGrid for such a supply and the applicants are currently working on a connection planning study. The connection would probably be made via a looped line back to the electrical grid, i.e. there would be two lines to provide sufficient security of supply. The electricity connection would be the subject of a separate planning application and EIS.

Kerry County Council would upgrade the coast road between Tarbert and the application site. The upgrading of this road is currently the subject of a procedure under Part 8 of the Planning and Development Regulations, 2001 by Kerry County Council. The road would be widened to a single carriageway width of 7 metres, plus 0.5 metre hard strips on both sides. It would be designed to suit a speed limit of 80 kilometres per hour. It would largely follow the existing alignment except where the curvature of existing bends has to be improved (EIS, Volume 2, Section 18.4).

I understand the gas pipeline is currently the subject of pre-application consultations with the Board under GC0003.

On the basis that the proposed development would require a gas connection to the National Grid, a major electricity connection and major road improvements, it has been claimed, both in the written submissions to the Board and during the Oral Hearing, that the proposed development constitutes project splitting.

The accusation of project splitting has been strongly refuted, on behalf of the applicants, during the closing submission at the Oral Hearing. Reference was made to the findings of the European Court of Justice in Case C-392/96, *Commission versus Ireland*, in which it was found, in effect, that project splitting was a device to avoid the obligation to carry out an EIA in the first place. It is submitted that in Volume 2, Chapter 17 of the EIS, the potential cumulative effects of the Shannon LNG Terminal and ancillary development have been considered in some detail (written legal submissions on behalf of Shannon LNG Limited, Page12).

The submission goes on to quote the decision of the High Court in *Muller versus An Bord Pleanála*, which involved an application for leave to apply for judicial review of a decision of the Board to grant permission for a proposed windfarm development, based, inter alia, on the failure of the EIS to address ancillary or incidental impact of the development and, in particular, the power lines running from the completed development. In that decision White J. held "*I am satisfied that considerations in relation to any potential ancillary or incidental impact of the developments did not fall to be determined at this stage, and that the position is correctly set out in the affidavit filed on behalf of the Second Named Notice Party, wherein it is averted that the ultimate application for development consent will not be made by the Second Named Notice Party, but by the ESB, being the body responsible under Statute for the National Grid. Consequently…a separate developer will have the responsibility for the preparation and submission of an Environmental Impact Study in respect of matters such as power lines, which will fall for separate consideration by the appropriate authority at the appropriate time.*" By the same token, Shannon LNG is an independent body from EirGrid, but, nevertheless, unlike the Muller case, the EIS in the present instance does consider and assess the cumulative impacts of a number of ancillary or related projects.

The minutes of the two pre-application meetings held with the Board in relation to the present project showed that the issue of project splitting was of concern. In the case of the first meeting, under the side heading "Pipeline Route Corridors" it is noted, "*the Board made the point that the issue of the pipeline should be addressed and should tie into some degree with any application, in order to avoid project splitting*". Under the side heading "Electricity Demand" it is noted, "*the Board pointed out that this should be addressed in any application for permission*". Under the side heading "Road Impacts" it is noted, "*the Board advised that this*

issue should be addressed when making the application". In the case of the second meeting, the prospective applicant was advised, *"the gas pipeline is fundamental to the overall proposal. Preferably there should be a single application covering both elements. If this is not possible, the Board stated that significant details of the proposed pipeline must be given in any separate application made for the terminal. The same principle would apply to any necessary electricity development required for the proposed development"*.

While I have reservations about the claim that "*ancillary projects are specifically addressed in some detail in the EIS*", nevertheless, I consider that as much detail as could be expected from the applicant has been submitted in relation to these ancillary projects. Thus rather more detail has been submitted in relation to the gas pipeline than the other ancillary projects, as Shannon LNG is the prospective applicant in the case of the pipeline, whereas EirGrid would be responsible for the electricity connection. It is my view that the making of the present application, separately from the ancillary projects, cannot, reasonably, be considered a ploy to avoid environmental impact assessment. A planning application for the gas pipeline would, itself, require the submission of an Environmental Impact Statement.

The Planning Authority's Recommendation

The Manager's Report from Kerry County Council concludes by recommending that permission be granted for the development, subject to the independent assessment of issues relating to ecology, soils, geology and hydrogeology. The planning authority has recommended that this permission be granted, subject to a series of conditions. These conditions relate to the payment of a €5,000,000 bond for satisfactory completion of the development, archaeological requirements, contributions towards water infrastructure and facilities and (separately) amenity facilities, payment of a special contribution towards the provision of a new enlarged water main, the provision of specialist fire fighting equipment and specialist training, the upgrading and widening of the coast road, the upgrading of the footpaths and road surface of Bridewell Street and the development of an off-street car park in Tarbert and junction improvements between the coast road and the R551, the payment of an annual community contribution scheme in the sum of €200,000, the preparation of a monitoring programme for the condition of the coast road, a requirement that all public infrastructure works should be completed prior to the commencement of development, the submission of a detailed Traffic Management Plan, a requirement that all delivery vehicles should use the upgraded coast road, a requirement that all vehicles leaving the construction areas should pass through a wheel wash, a requirement that traffic movements should be restricted at the start and finish times of the Tarbert School, requiring an agreement under Section 47 of the Planning and Development Act, 2000 covering payment by the developer for maintenance costs on the coast road, the restoration of the terminal site to the satisfaction of the planning authority at the end of operations, the implementation of the Traffic Management Plan, the recoupment of costs associated with the monitoring of waste management, traffic and environmental management plans, requiring the bunding of all tank and drum storage areas, requiring the provision of oil abatement kits, requiring the submission of percolation tests for the proposed wastewater treatment plant at the jetty, restricting noise during the construction phase, restricting dust levels, requiring the submission of a waste management plan, requiring the provision of an appropriate fire fighting appliance

and suitably trained fire fighting crew on site, specifying detailed requirements in relation to the site clearance phase and (separately) the construction phase and requiring the contribution of a maximum of €80,000 for the provision of public art work.

The applicants were agreeable to the imposition of most of the conditions recommended by the planning authority. In relation to the recommended condition on the quality of the nickel to be used in the construction of the inner steel tanks of the LNG storage tanks, it was stated that all nickel steel is subject to mill certification testing requirements of the applicable fabrication specifications to which it is formed. Regular inspection of the composition and purity of the steel is conducted by certified inspectors. The applicants requested that revised wording be adopted in this condition as follows: -

"All nickel steel used in construction of LNG tanks and LNG or gas pressure piping to be independently certified as to nickel concentration and purity and compliance with its specifications by personnel holding accreditation from recognised third party agencies. A summary of results of the independent testing of site materials to be supplied to the planning authority on a quarterly basis. Any digressions from specifications shall be highlighted".

In relation to the planning authority's requirement that all welds in the fabrication of the gas tanks/pipeline should be x-rayed as to quality and fitness, the applicants agreed that all welds should be subject to an examination for fitness of service in accordance with the applicable regulatory requirements of the weldment being made. All pressure components of the LNG tanks and LNG and natural gas piping would be subject to non-destructive testing. Not all welds lend themselves to meaningful evaluation by the x-ray technique, while other welds, although capable of being examined by x-ray, may be better evaluated by other techniques. 100% non-destructive testing of all LNG and natural gas pipeline girth welds would be undertaken. A re-wording of the planning authority's recommended condition was suggested, as follows: -

"All welds in the fabrication of pressure components in the LNG tanks and in the LNG and natural gas piping should be non-destructively tested as to quality and fitness". (Submission of Leon A. Bowdoin, Junior, - Oral Hearing Day 3, Pages 34 and 35).

Towards the end of the Oral Hearing, the planning authority was questioned as to whether or not it had considered the imposition of a bond for the full restoration of the site at the expiry of the development, possibly in 50 or more year's time. The planning authority responded that this had, in fact been discussed, but had been omitted, in error. The planning authority suggested an appropriate wording, as follows: -

"On or before the date of the expiry of the bond in the sum of €5,000,000 which is coupled with an agreement to empower the planning authority to apply such security, or part thereof, to the satisfactory completion of any part of the development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company or other security to secure the satisfactory reinstatement of the site, upon cessation of the project, coupled with an agreement empowering the planning authority to apply such security or part thereof to the satisfactory reinstatement of the site. The form and amount of security shall be as

agreed between the planning authority and the developer, or, in default of agreement, it shall be determined by An Bord Pleanála."

In the event that it is decided to grant permission for this development, I consider that it would be appropriate to apply conditions along the lines suggested by the planning authority, with appropriate amendments to reflect the detailed concerns of the applicants.

Property Values and House Insurance

Concerns were expressed in a number of the written submissions received by the Board that the proposed development would have a negative impact on surrounding property values and that house insurance would become more costly. The applicants' response, during the course of the Oral Hearing was that there was no credible evidence to suggest that there would be a negative impact on property values or that the proposed development would impact in any way on home insurance in the vicinity. (Oral Hearing submission of Michael Biggane, page 5 – Oral Hearing, Day 7). It was submitted that experience in Whitegate, County Cork, where there are two Seveso 2 registered developments, Conoco Phillips Oil Refinery and Calor Liquid Petroleum Gas, does not support the contention that there would be any ongoing diminution of property values. This was backed up by a submission from Michael Russell, an auctioneer in Whitegate. He claimed that local property values were on a par with, if not ahead of, any of the major villages in Cork for comparable properties.

At the Oral Hearing, one of the objectors referred to research carried out in the United States showing that property had taken over a year to sell and had suffered a 29% loss in value as a result of a plant in Burrillville, Rhode Island and also to experience in Everett, Massachusetts, the home of the District Gas LNG facility, where property prices have increased at a slower rate than other towns in the area. In response, it was pointed out that Burrillville, Rhode Island is 30 miles inland and does not have an LNG terminal, although it does have a natural gas fired power plant, so that it is not comparable. Gordon Shearer, President and Chief Executive of Hess LNG, had worked in Everett for many years and, while it is an industrialised city, he had not been aware of depressed property values. It was also denied that the Calor LPG terminal represented a lesser risk than the proposed development as LPG is stored under pressure and can be explosive (Oral Hearing, Day 7, Page 23).

Referring to the allegation that two house sales had fallen through as a result of the proposed LNG plant, Michael McElliott, from the Chamber of Commerce in Tarbert, pointed to the fact that five people were seeking planning permission for houses in the Kilcolgan area at present. He had been outbid on sites in Kilcolgan and felt if there was any downturn in the market, it was simply a reflection of the property market downturn, nationally (Oral Hearing, Day 7, Page 31).

In my view, it is difficult to predict the effect the LNG terminal would have on house property prices in its vicinity. Assembly of the Shannon Landbank commenced as long ago as 1959. It has long been known that there was a possibility of some major industrial or port development on all or part of the landbank. The planning authority notes objectives in relation to the lands first appeared in the county development plan of 1989. While the coast road would cease to be seen as being in an unspoilt rural landscape, with power

stations in the background, there is also the possibility that the employment offered by the proposed development both at construction and operational stage would give rise to an increased demand for housing in the area. As to claims that house insurance rates would go up, based on enquiries to insurance companies, this seems likely to depend very much on the question asked of the insurance company. If the proposed development is cleared by the Health and Safety Authority, this should surely be enough to satisfy an insurance company, so that the effect on house insurance should be neutral.

The Ten-Year Permission

The applicants seek a ten-year permission to enable them to carry out the development. This has given rise to complaints that the proposed development would involve ongoing noise, disturbance, traffic and general nuisance over that period. However, it should be noted that the most intensive construction period would be the first four years of the project. In the initial phase the platform for all four LNG storage tanks would be constructed. The jetty, gasification plant, water storage pond, road network and boundaries would be constructed, all of them once-only elements, which would serve the entire project whether it be for a single storage tank or up to four storage tanks. In the subsequent phases of the development, whether it be for one, two or three additional storage tanks, there would be a much lesser level of construction activity and reduced construction traffic.

Towards the end of the Oral Hearing, the applicants were queried on the proposed use of 265,000 cubic metre tanker ships. In response, it was stated that these ships are currently under construction and the first one is due to enter service around September 2008. Somewhere between 12 and 15 such ships are under construction at present. In addition, another series of ships of 216,000 cubic metre capacity are also being introduced into service, the first making its initial delivery late in 2007. When it was put to the applicants that this surely implied that it would be necessary to construct at least two of the LNG storage tanks at the outset in order to be able to take the full capacity of one of these ships, it was pointed out that these ships are all currently dedicated to supply LNG from Qatar. If it was decided to take the LNG supply from another source, it would be possible to use smaller ships, necessitating the construction of just one LNG storage tank.

Despite the possibility of using smaller ships, there were indications, at other times during the Oral Hearing that the initial phase of the development is likely to consist of the construction of two storage tanks, e.g. the response of Michael Biggane to a question from a local resident, Catriona Griffin clarifying that the employment of 50 permanent staff related to two tanks and that it would be marginally more if four tanks were in operation (Oral Hearing Transcript, Day 7, Page 40). The traffic generation for the construction phase of the development was based on the assumption that two tanks would be constructed initially (EIS, Volume 2, Section 6.3.2.1). Based on the normal send out volume of 11.3 million standard cubic metres per day, I estimate, on a 600:1 ratio of gas to LNG that a 200,000 cubic metre storage tank would be completely emptied in just 10.6 days, leaving little flexibility for contingencies such as the delayed arrival of an LNG tanker ship. **Should it be decided to grant permission for this development, I do not consider that it would be unreasonable, in the interest of residential amenity, that the first phase of the development should be required to consist of the construction of two storage tanks.**

CONCLUSION

The Board should note that throughout my assessment, I have concentrated on the contentious issues in relation to the application, the objections raised and the responses to those objections. However, it was obvious from the Oral Hearing that, in addition to the individual objectors and the Kilcolgan Residents Association with 61 named participants, there was also a strong body of opinion in favour of the proposed development. The attendance at the Oral Hearing seemed, basically, to fall under one of two factions, namely the objectors, living, farming, or with family roots in the general Kilcolgan area and those in favour of the proposed development based in the two towns at either end of the coast road, Tarbert and Ballylongford. The attitude of those in favour of the development, essentially seemed to be that the proposed development would provide a much needed economic fillip, in an area which has suffered economic and population decline for a considerable period and would at last see some development taking place on part of the Shannon Landbank.

The prime purpose of the proposed LNG storage and regasification terminal is, at least initially, to provide a direct supply to the national gas grid. It could also function as a strategic reserve, but this would be likely only in the later phases of the development, should it be decided to proceed with three or four tanks. An LNG storage and regasification terminal would appear to offer the only realistic means of competitively augmenting the Irish gas supply, short of a very major natural gas discovery either on land or at a viable distance offshore. In providing this new source of supply, the proposed development would meet the aims and objectives of both the National Development Plan and the White Paper "Delivering a Sustainable Energy Future for Ireland".

While the current unspoilt rural landscape at the application site would be changed dramatically with the provision of up to four massive, albeit lower profile, LNG storage tanks, the layout chosen, placing these storage tanks on a platform at an elevation of ten metres would go some way towards screening the proposal against an immediate backdrop of a hill rising to 30 metres. When seen from many viewing points, the application site would have either or both of the Moneypoint and Tarbert power stations in the foreground or the background. From these view points, the proposed development would not be seen as intruding into an otherwise unspoilt rural landscape.

The construction traffic, which would arise from the development is considerable, but with the very major upgrading of the coast road between the site and Tarbert, this could be accommodated.

The construction of the pond on the stream traversing the site would have a marked impact on the stream, but the stream, itself, is very minor in terms of the overall catchment of the River Shannon.

The Health and Safety Authority has advised that it does not advise against the granting of planning permission in the context of Major Accident Hazards. The only chance of a major conflagration appears to arise from a deliberate release of one or more of a tanker ship's LNG tanks, the applicant's *"credible worst case scenario"*. If such an event were to take place while the ship was moored at the end of the jetty, the nearest house would be at a distance of over one kilometre and

wholly or partly (depending on the height of the resulting fire) screened by the intervening landscape. The main part of the establishment, itself, with its massively constructed full containment storage tanks and tiered and multi-layered safety shutdown system would be at a distance of 500 metres.

There is nothing in relation to emissions, which would warrant a refusal on environmental grounds.

The proposed development would seem to be appropriate for this site, which is adjacent to sheltered deepwater and accessible by the largest envisaged tanker ships. The remainder of the Shannon landbank would be largely unaffected, except that if it were to be developed without an interdependence on the adjoining LNG terminal, it might be forced to have an extremely long jetty in order to reach deepwater.

RECOMMENDATION

Having regard to the foregoing, I recommend that permission be granted for this development for the reasons and considerations and subject to the conditions set out below.

REASONS AND CONSIDERATIONS

Having regard to:

(j) The provisions of the National Development Plan in relation to security of energy supply,

(k) The strategic goals of the government White Paper, "Delivering a Sustainable Energy Future for Ireland", published in 2007, which seek to ensure secure and reliable electricity and gas supplies, to enhance the diversity of fuels used for power generation and to be prepared for energy supply disruptions,

(l) The objectives of the Kerry County Development Plan, 2003-2009, including the industrial zoning objective and the objective to identify lands in key strategic locations that are particularly suitable for development that may be required by specific sectors,

(m) The identification in the Kerry County Development Plan, 2003-2009, of lands at Ballylongford/Tarbert as suitable for development as a premium deepwater port and for major industrial development and employment creation,

(n) The accessibility of the site to sheltered deep water capable of being reached by the largest contemplated LNG tanker ships,

(o) The proximity of the site to the national gas transmission grid at a point where there is sufficient capacity to accept the gas output of the terminal, and

(p) The detailed design of the proposed development, including the mitigation measures of the Environmental Impact Statement,

it is considered that, subject to compliance with the conditions below, the proposed development would not seriously injure the amenities of the area or of property in the vicinity, would not be prejudicial to public health or safety and would be acceptable in terms of traffic safety and convenience. The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area.

CONDITIONS

1. The development shall be carried out in accordance with the plans and particulars, including the Environmental Impact Statement, lodged with An Bord Pleanala on the 24th day of September 2007, except as may otherwise be required in order to comply with the following conditions.

   Reason: In the interest of clarity.

2. This permission shall be for a period of ten years.

   Reason: In order to allow a reasonable period for the completion of this extensive development.

3. The construction of the LNG terminal shall be undertaken as a single continuous project, or, alternatively, shall be carried out on a phased basis, with each phase being related to the construction of one or more of the full containment LNG storage tanks. In the event that the proposed development is undertaken on a phased basis, the first phase shall be related to the construction of two of the full containment LNG storage tanks.

   Reason: In the interest of clarity and to reduce the construction period in the interest of residential amenity.

4. The southwestern boundary and the extent of the site shall be amended so as to entirely exclude the road to Kilcolgan Strand and the parking/turning area at its termination. The boundary shall be relocated in such a manner as to allow unimpeded pedestrian access to the shoreline in a straight-line projection from this road from the terminating parking/turning area. The relocated site boundary and fence shall be as agreed during the course of the

Oral Hearing in connection with the proposed development and shall be as shown on modified Arup Drawing No. SK-107 received by the Board on the 12th day of March, 2008.

Reason: To maintain existing access to the shoreline

5. In the event that it should prove necessary to provide a private right-of-way across the site for the benefit of a third party, full details of this right-of-way, including its width, alignment and purpose, whether vehicular or pedestrian, shall be submitted for the records of the planning authority. These details shall include a map to a minimum scale of 1:2,500.

Reason: In the interest of orderly development.

6. The entrance to the administration complex shall be relocated in an easterly direction by approximately 50 metres, as shown on Arup Drawings SK-105 and SK-106, presented at the oral hearing on the 29th day of January, 2008.

Reason: In the interest of residential amenity.

7. Subject to any further amendments required to accommodate the relocation of the entrance to the administration complex, required at Condition 6, above, the road boundary fence line shall be set back as shown on the drawing entitled "Proposed Alternative Fence Location", submitted as part of the landscape and visual presentation images at the oral hearing on the 25th day of January, 2008. The planting and landscaping between this setback boundary and the existing road boundary shall be amended as shown on this drawing.

Reason: In the interest visual amenity.

9. The LNG terminal shall initially be for the purpose of supplying natural gas to the national grid. It may, additionally, have the later purpose of providing strategic reserve storage. No gas, whether in liquid or gaseous form, shall be permitted to leave the site by road tanker, nor, except in the event of an emergency, shall there be any re-export of LNG from the site by tanker ship.

Reason: In the interest of orderly development and traffic safety.

10. Prior to the commencement of the main construction elements of the development, all necessary public infrastructure works shall be completed to the satisfaction of the planning authority. This shall not preclude the undertaking of site preparation and earthworks contemporaneously with the upgrading of the L1010 coast road. The precise extent of works, which may be carried out prior to the completion of the public infrastructure works, shall be submitted to and agreed in writing with the planning authority, prior to commencement of development.

Reason: In the interest of orderly development and of traffic safety.

11. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority a detailed traffic management plan. This management plan shall include restrictions on traffic movements

at Tarbert Comprehensive School, which shall prohibit the movement of HGV traffic associated with the construction of the terminal for a minimum period of 20 minutes before and ten minutes after the opening and closing times of the school. It shall also include the staggering of various shift start and finish times.

Reason: In the interest of traffic and pedestrian safety.

12. All vehicles traversing unpaved areas of the construction site shall pass through wheelwash facilities with rumble grids. These shall be located inside all exits from the site. All vehicles leaving the site shall be monitored to ensure that the public road is kept free of mud and debris.

Reason: In the interest of traffic safety and general amenity.

13. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority, a monitoring programme for the condition of the L1010 coast road from the southernmost extremity of the site to Tarbert. The monitoring programme shall include details of the frequency of surveys, acceptable surface standards and response times for agreed works. In the event that identified remedial works are to be carried out by the planning authority, all costs associated with these works shall be reimbursed to the planning authority by the developer.

Reason: In the interest of traffic safety.

14. Prior to commencement of development, the developer shall enter into a legally binding agreement or agreements with the planning authority under section 47 of the Planning and Development Act, 2000. The agreement or agreements shall provide for

    a. The payment by the developer of all maintenance costs associated with the upkeep of the road network servicing the site during the construction phase

    b. Restoration of the terminal site to the satisfaction of the planning authority following the cessation of operations.

    c. Implementation of the traffic management plan.

    d. The recoupment by the planning authority of all costs associated with the monitoring of waste management, traffic and environmental management plans.

Reason: In the interest of the proper planning and sustainable development of the area.

15. All tank and drum storage areas on the site shall, as a minimum, be bunded to a volume not less than the greater of the following: -

i. 110% of the capacity of the largest tank or drum within the bunded area, or

ii. 125% of the total volume of substance, which could be stored within the bunded area.

All fuel storage areas and cleaning areas, particularly for concrete trucks, shall be rendered impervious to the stored or cleaned materials and shall be constructed to ensure no discharges from the areas.

Reason: To prevent surface and groundwater pollution.

16. The developer shall maintain on site, for the duration of the construction period, oil abatement kits comprising of booms and absorbent materials. The precise nature and extent of the kits shall be submitted to and agreed in writing with the planning authority prior to commencement of development.

Reason: To prevent water pollution.

17. Prior to commencement of development, precise details of the percolation results for the proposed wastewater treatment plant serving the jetty gatehouse shall be submitted to and agreed in writing with the planning authority.

Reason: To prevent water pollution, in the interest of public health.

18. (1) During the site clearance, preparation and construction phase of the proposed development, the resulting noise level, when measured at the nearest noise sensitive location, shall not exceed-

(An L_{Ar}1 hour value of 55 dB(A) during the period 0800 to 2200 hours from Monday to Saturday (inclusive), and

(an L_{Aeq}15 minutes value of 45 dB(A) at any other time.

(2) All sound measurements shall be carried out in accordance with ISO Recommendations R 1996, "Assessment of Noise with Respect to Community Response" as amended by ISO Recommendations R 1996/1, 2 and 3, "Description and Measurement of Environmental Noise", as appropriate.

Reason: To protect the amenities of properties in the vicinity of the site.

18. (1) The vibration levels from blasting shall not exceed a peak particle velocity of 12mm/sec.

(2) Blasting shall not give rise to air overpressure values at noise sensitive locations exceeding 125 dB (Lin) max peak.

Reason: In the interest of residential amenity.

19. During the site clearance, preparation and construction phase of the development, dust levels shall not exceed 350 milligrams per square metre (TA LUFT Air Quality Standard) per day averaged over 30 days, when measured at the site boundary. Any activity, which could reasonably be expected to exceed such a level, and proposed mitigation measures, shall be notified to the planning authority.

Reason: In the interest of public health and residential amenity.

19. The developer shall employ suitably qualified Marine Mammal Observers for the duration of sub-tidal piling and on-shore blasting. Commencement of piling or blasting shall be delayed if the Marine Mammal Observers note dolphins within 500 metres of the site within 20 minutes of the planned commencement of works. No action shall be necessary if a dolphin approaches once operations have commenced. A log of the Marine Mammal Observer operations shall be submitted to the planning authority, following completion of these works.

Reason: In the interest of wildlife protection.

19. The acoustic monitoring programme carried out in assessing the potential impact of the proposed development on the resident bottle-nosed dolphin population shall be continued through the construction phase and for a period of 24 months into the final operational phase. The results of the monitoring programme shall be submitted to the planning authority at 12 monthly intervals.

Reason: In the interest of wildlife protection.

19. During the construction phase, the developer shall adhere to the *Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes,* published by the National Roads Authority in 2006. In particular, there shall be no blasting or pile driving within 150 metres of an active badger sett during the breeding season (December to June) or construction works within 50 metres of an active sett during the breeding season.

Reason: In the interest of wildlife protection.

19. Where an existing badger sett would be disturbed or destroyed, an artificial sett shall be constructed beforehand and the badgers relocated thereto. Details of any such artificial setts shall be submitted to and agreed in writing with the planning authority, prior to commencement of development.

Reason: In the interest of wildlife protection.

19. Detailed measures in relation to the protection of bats shall be submitted to and agreed in writing with the planning authority, prior to commencement of development. Any envisaged destruction of structures that support bat populations shall be carried out only under licence from the National Parks and Wildlife Service and details of any such licence shall be copied to the

planning authority.

Reason: In the interest of wildlife protection.

19. As soon as practical, a monitoring programme shall be instituted to monitor the movement of winter wetland birds along the shore adjacent to the application site between Ballylongford Bay and Tarbert Bay. This monitoring programme shall continue through the construction phase and for a period of 3 years after the final construction, with monthly surveys from October to March. The results of this monitoring programme shall be submitted to the planning authority at 12 monthly intervals.

Reason: In the interest of wildlife protection.

19. Prior to the destruction of the existing sand martin breeding cliffs within the site, the developer shall ascertain the suitability of alternative potential nesting locations within a distance of 500 metres of the site. Should no suitable natural locations be found within this distance, artificial burrows shall be provided within the site.

Prior to commencement of development, details showing compliance with this requirement shall be submitted to and agreed in writing with the planning authority.

Reason: In the interest of wildlife protection.

19. The removal of frogs from the site shall be undertaken during the months of August-February only and shall be carried out under licence from the National Parks and Wildlife Service.

Reason: In the interest of wildlife protection.

19. The design of the water intake shall be based on Best Available Technology and shall be submitted to and agreed in writing with the planning authority, prior to commencement of development. A monitoring programme shall be implemented following the commissioning of the water intake over the course of 2 years to provide an estimate of the numbers of impinged and entrained organisms, particularly fish and macro-crustaceans. The results of this monitoring programme shall be submitted to the planning authority at 12 monthly intervals and every effort shall be made to facilitate any changes, which may be deemed necessary to reduce the numbers of impinged and entrained organisms.

Reason: In the interest of wildlife protection.

19. A monitoring programme shall be implemented to verify the accuracy of the discharge modelling and predictions for chlorine dispersion. Any changes deemed necessary to achieve the predictions shall be submitted to and agreed in writing with the planning authority.

Reason: In the interest of wildlife protection.

19. The effects on the salt marsh of regulating the flow of water downstream of

the holding pond during the pond filling period and reverting to the natural flow regime thereafter shall be monitored and any alterations to the flow, deemed necessary, shall be accommodated, subject to the overriding requirement to provide water for hydro-testing of an LNG storage tank.

Reason: In the interest of wildlife protection.

31. During the construction phase, the developer shall adhere to the *Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes*, published by the National Roads Authority in 2005. In particular a pre-construction otter holt survey shall be conducted no more than 10-12 months in advance of construction.

Reason: In the interest of wildlife protection.

32. During the filling of the pond, the stream shall be diverted along an alignment following its ultimate southern margin and paralleling the top of the embankment, as shown on the amended Arup Figure 3.11 and amended extract from Arup Drawing C1676/C021, submitted at the oral hearing on the 29th day of January, 2008.

Reason: To minimise the impact on the stream, downstream of the embankment.

33. The full containment LNG storage tanks shall have an uncoloured plain concrete finish. They shall not be used for any form of advertising or name signs.

Reason: In the interest of visual amenity.

34. Prior to commencement of development, the developer shall enter into discussions with the landowners at Ralappane House and the house approximately 500 metres to the east of Ralappane House with a view to providing additional screen planting in the vicinity of these houses. Such planting shall be designed to screen the LNG tanks from view in as short a time as possible, having due regard to the exposed conditions at these locations. Details of agreed planting, at a minimum scale of 1:500, shall be submitted for the records of the planning authority. In the event that this should not prove possible, as a result of the failure to obtain the consent of the landowners, evidence of having attempted to achieve such consent shall be submitted for the records of the planning authority.

Reason: In the interest of visual amenity.

35. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority, details in relation to the site clearance and preparation phase of the development. These details shall include a waste management plan, the timely and secure fencing of the entire land boundary, including details of any temporary fencing, arrangements for the storage and dispensing of all oils, including fuel, hydraulic and lubricating oils and their storage within bunded areas, the provision oil pollution equipment, the provision of mobile bowsers, machinery reversing alarms, the treatment of surface waters and run off

waters which may be contaminated by silt, grit, etc., and the treatment of sanitation and canteen waste.

Reason: In the interest of the proper planning and sustainable development of the area.

36. If clay is used in the pond and embankment lining, it shall be appropriately puddled to industry standard specifications.

Reason: In the interest of the proper planning and sustainable development of the area.

37. Explosives to be used in the project shall be selected and their detonation overseen by an explosives expert, taking into account, inter alia, the nature of the rock being blasted, as well as the geology of the area.

Reason: In the interest of residential amenity and the proper planning and sustainable development of the area.

39. Prior to commencement of development, the developer shall submit and agree in writing, a timetable for the planting and landscaping shown on Brady Shipman, Martin Drawing C501. Should it be intended to carry out this planting in a series of phases or areas, this shall be illustrated with appropriate maps.

Reason: In the interest of visual amenity.

40. The following archaeological requirements shall be complied with in the development: -

(a) Targeted archaeological testing shall be undertaken at areas B, C, F, I, J, K, L, M, 6, 8, 10 and 13 (as identified in the archaeological assessment report) and in the identified areas of archaeological potential.

(b) A wade and metal detection survey shall be undertaken on the watercourse.

(c) Areas CHS2, CHS4, CHS5, CHS6, CHS7, CHS9, CHS13 and CHS15 shall be fully recorded in advance of removal.

(d) A seabed impact exclusion zone of 50 metres shall be established around feature SS8 (as identified in the archaeological assessment report) during the construction phase of the development.

(e) A diver survey shall be undertaken along the footprint of the proposed jetties and, where archaeological material/features are shown to be present, they shall be preserved *in situ*, preserved by record, avoided or monitored, as appropriate.

(f) The results of archaeological testing, in consultation with the planning authority, shall inform the size and extent of the buffer zone around the ringfort CH10, Area G and Area 17 (as identified in the

archaeological assessment report).

(g) Scheduled testing shall be undertaken.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

41. Prior to commencement of development, the developers shall agree the location and nature of any obstacle lights, which may be necessary, with the Irish Aviation Authority. Details of such lights, if any, shall be submitted for the records of the planning authority.

Reason: In the interest of public safety.

41. The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000. The contribution shall be paid prior to the commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine the proper application of the terms of the Scheme.

Reason: It is a requirement of the Planning and Development Act 2000 that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to the permission.

42. The developer shall pay to the planning authority a financial contribution as a special contribution under section 48(2)(c) of the Planning and Development Act 2000 in respect of

- Upgrading the public water infrastructure serving the site from a 50 millimetre main to a 150-millimetre Class C watermain.

- Provision of specialist fire fighting equipment and specialist training for the fire service.

- Upgrading and widening the L1010 coast road to the standard required to facilitate the project.

- Upgrading footpaths and the road surface of Bridewell Street, Tarbert and the development of an off-street car park.

- Improvements at the junction of the R551 and L1010.

(In the event of the specified infrastructure benefiting subsequent

developments, contributions arising shall be apportioned to each development. While the entire contribution is payable, as the works are immediately required for the current development, on completion of subsequent developments, the current developer shall receive the benefit of development contributions as apportioned).

Reason: It is considered reasonable that the developer should contribute towards the specific exceptional costs, which are incurred by the planning authority which are not covered in the Development Contribution Scheme and which shall benefit the proposed development.

43. Prior to commencement of development, the developer shall prepare an Annual Community Contribution Scheme to be administered by the planning authority for the benefit of the local community. The amount of the contribution shall be agreed between the planning authority and the developer, or, in default of such agreement, the matter shall be referred to the Board for determination.

Reason: It is considered appropriate that the developer should contribute towards the cost of community projects in the vicinity of the development, in accordance with the provisions of Section 37g(7) of the Planning and Development Act, 2000, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006.

44. The developer shall contribute a sum not exceeding €80,000 to the planning authority for the provision of specific public artwork benefiting the community. The nature and location of this work shall be agreed in writing with the planning authority.

Reason: In the interests of visual amenity.

45. Prior to commencement of development, the developer shall lodge with the planning authority a cash deposit, a bond of an insurance company, or other security to secure the provision and satisfactory completion of the development. The bond shall remain in place for a period of 17 years from the date of grant of permission, or until such time as the development has been completed to the satisfaction of the planning authority in accordance with the conditions of the planning permission hereby granted (whichever is the sooner). The form and amount of the security shall be as agreed between the planning authority and the developer or, in default of agreement, shall be determined by An Bord Pleanála.

Reason: To ensure the satisfactory completion of the development.

46. On or before the date of expiry of the cash deposit, bond or other security required at Condition 45, above, the developer shall lodge a similar form of financial security to secure the satisfactory reinstatement of the site upon cessation of the project. The form and amount of the security shall be as agreed between the planning authority and the developer, or, in default of

agreement, shall be determined by An Bord Pleanála.

Reason: To secure the satisfactory reinstatement of the site, in the interests of visual amenity.

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Andrew Boyle

Senior Planning Inspector

14th March, 2008.

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Note: In view of the possibility of a private right-of-way across the site the applicants and observers should be advised of the provisions of Section 34 (13) of the Planning and Development Act, 2000.